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ABSTRACT

These proceedings begin with opening remarks that discuss seminar concerns and objectives. These remarks define two concerns: (1) evaluation of the methods of curriculum development and evaluation appropriate for vocational education in New Zealand; and (2) development of guidelines to assist educators to meet the requirements for competency-based education. "Towards Competency" (Phil Goff) and the subsequent comment on the paper discuss the new National Vocational Qualifications Board. Four keynote speeches presented are: "Towards Competency: An Industry View" (Ray Tayler); "The Role of the Policy-maker in Vocational Education and Training" (Catherine Gibson); "Providers" (Turoa K. Royal); and "A Researcher's Viewpoint" (Ian Livingstone). An overview of the keynote speeches follows. Presenters' notes are then provided for eight presentations/workshops on practical applications of competency-based vocational curriculum development and evaluation: "Peer Group Assessment and Competency-Based Training" (Bernice Kelly); "Competency-Based Curricula in Agriculture Training" (Ray Craven); "Competency-Based Education in the Service Sector" (John Olds); "Management of Evaluation" (Mary Boyle); "An Application of Competency-Based Training" (Victor Johnson); "Technology and the Vocational and Academic Curriculum: Methods for Integration and Evaluation" (G. Khan); "Modularisation: Implications and Examples, Competency-Based Learning Programme--Carrington Polytechnic, and Needs-Based Learning on Campus" (Lesley Edgley, Irene Lynch); and "The DACUM Process and Its Application in Developing Competency-Based Training for the Apprenticeable Trades in the Motor Industry" (Nano Morris, Steven Wickens). Participants' comments follow the first six presentations. The next section summarizes discussion group sessions by outlining the issues reported by the groups. A discussion of the main points or themes arising from the speeches, presentations, and workshops follows. Other contents include closing remarks from various participants; a selection of retrospective views from representative participants; a summary; and lists of the working party and participants. (YLB)

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Proceedings of the **TOWARDS COMPETENCY SEMINAR**

A Seminar on Curriculum Development
and Evaluation in Vocational Education
in New Zealand

NZCER
August, 1988

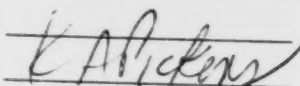
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ACKNOWLEDGEMENTS

On behalf of the Working Party I would like to acknowledge the advice and support extended to us throughout this project by Ms. Catherine Gibson (Department of Education), Mr. Derek Wood (Vocational Training Council) and Mr. Ian Livingstone (New Zealand Council for Educational Research). Without their encouragement and active participation there would not have been a seminar.

In particular I would like to thank NZCER for releasing me to assist in running this seminar and for providing the venue and other services at the time. I would also like to thank the Vocational Training Council for releasing Nano Morris to work with me to make the seminar a success. Nano proved to be an effective, efficient and highly organised Executive Officer to the Working Party and a pleasure to work with.

In addition, thanks are due to the Towards Competency seminar Working Party who gave freely of their time and pitched in to help during the two days of the seminar. In this respect special thanks are due to Teresa Maguire (NZCER) who tirelessly documented, recorded and administered for the Working Party, and Lauren Stempler (VTC) and Peter Rose (VTC) who acted as recorders for some sessions during the seminar.

Grateful thanks are also extended to the hardworking seminar presenters: Ms. Bernice Kelly (Dietitians Board), Mr. Ray Craven (Ministry of Agriculture and Fisheries), Mr. John Olds (Bank of New Zealand Training Centre), Ms. Mary Boyle (Waikato Technical Institute), Mr. Victor Ramsey Johnson (Premier OTD Consultants), Mr. G.I.A.R. Khan (Education Department, Canterbury University), Ms. Lesley Edgley and Ms. Irene Lynch (Department of Education-Wanganui Polytechnic), and Steven Wickens (Motor Industry Training Board).

Finally, to all those participants who attended the seminar and made contributions during the workshops and open sessions, we offer our special thanks together with the hope that their efforts, in trying to resolve the issues this country faces in developing new curricula, will assist others make-up the serious nation-wide lag in job skills so evident in the present New Zealand work force.

*Graham Wagner
Chairman
Towards Competency Seminar Working Party*

TOWARDS COMPETENCY SEMINAR PROCEEDINGS

OPENING REMARKS

This seminar did not just happen by chance. It was the result of an ongoing ferment in the field of vocational education and training that could not be ignored by those working there. In short, changing economic circumstances affecting the whole country demanded, among other things, a new approach to vocational curriculum development and evaluation. In this respect there were three main influences which stimulated change. This first became noticeable in the demand for a wide range of new skills required from workers in just about every job in the work place. The second influence was the flurry of activity by curriculum practitioners who were forced by changing circumstances to provide information about these new skills and in their efforts to do so they were required to undertake curriculum-related tasks that they had not been trained for. Finally, and in the background, there was sketchy but pertinent research on the benefits of competency-based education (CBE) in both New Zealand and overseas which indicated a new approach to curriculum development and evaluation was not only relevant in the present climate, but was now long overdue.

Organisations such as the Industry Training Boards (ITBs), the Vocational Training Council (VTC), some government departments (in particular the Departments of Education and Labour) and the New Zealand Council for Educational Research (NZCER) responded as best they could to the many calls for assistance. Yet, due to the ad hoc nature of vocational curriculum development, and without any clear policy guidelines from government, well-meaning but often fruitless efforts to cope with the required changes more often than not led to duplication, misdirection, alienation, and confusion. A case in point was the advocacy of DACUM (an acronym for Developing a Curriculum) as the "so called" panacea for dealing with the mounting demands for competency-based curricula, not only in trade and technician courses, but also in high status professional education and training programmes.

The controversy over the applicability of DACUM to all kinds of curriculum design and evaluation in the vocational field (some of it misinformed but, nevertheless, some of it justified) grew in intensity during the mid-eighties. Added to this was the growing realisation by some educators and trainers that there were other ways of dealing with curriculum change which might better cope with different kinds of learning needs in both the formal and informal education and training sectors. This was especially true for those who were not only seeking a break away from traditional subject-based curricular methods but for those who wanted to see humanistic learning processes extended from the secondary schools into the job training arena.

In response to the efforts of these diverse interest groups, the Education Department, Vocational Training Council and the New Zealand Council for Educational Research met in early 1988 to

consider ways of bringing a modicum of order and direction into curriculum development and evaluation in vocational education and training. The Towards Competency seminar was the outcome of these earlier meetings.

Aware that the government was planning far-reaching changes to training and certification practices in this country, but mindful of the need to do something about the uncoordinated and confused situation in vocational training, a Towards Competency seminar Working Party of interested people (a mail survey had been undertaken to identify lead players) was set up by NZCER and the VTC to bring together those who shared an interest in, and concern for, improving current practices in vocational curriculum development and evaluation. The Working Party's motives in taking this step were driven by two main concerns. In particular, it had noted that countrywide there was a need to:

1. evaluate the methods of curriculum development and evaluation appropriate for vocational education in New Zealand.
2. develop guidelines to assist on- and off-job providers to meet the requirements for competency-based education.

Therefore a seminar addressing these issues, it was reasoned, would provide the basis of long overdue instructions on relevant CBE approaches to suit New Zealand conditions, as well as provide documentation on current practices in CBE to assist practitioners overcome many of the planning difficulties that were extant in the changing work-place. It was agreed by the Working Party, that a document in the form of a proceedings publication would assist curriculum and training specialists to respond with confidence to the demands made on them as a result of the substantial reshaping of the New Zealand vocational education and training systems foreshadowed in the Probine-Fargher Report and later detailed in the Hawke Report¹.

The Working Party, made up of representatives from the Department of Education, the New Zealand Employers Federation, the Central Tutor Education Centre, the New Zealand Council for Educational Research and the New Zealand Association of Polytechnic Teachers (See Appendix A), agreed to quite specific terms-of-reference for the proposed seminar. In particular, the seminar was designed to:

1. examine the methods of curriculum design currently being used in New Zealand vocational education, with a view of appropriateness, acceptability and cost-effectiveness to employers, students and teachers;
2. examine the methods of curriculum evaluation currently being used in New Zealand vocational education, with a view to outlining their advantages in terms of appropriateness, acceptability and cost-effectiveness to employers, students and teachers;

¹. See the Probine-Fargher Report on the polytechnics [*The Management, Funding, and Organization of Continuing Education and Training* (March, 1987)] and the Hawke Report on the post-compulsory sector of education [*Postcompulsory Education and Training in New Zealand* (July, 1988)].

3. examine overseas developments and influences in curriculum design and evaluation;
4. develop guidelines to assist on- and off-job providers to meet the requirements for competency-based education.

The seminar had to be all but totally self-supporting, therefore it was not possible to bring in overseas speakers and incorporate them into the programme. To overcome this limitation the Working Party arranged that one of the keynote speakers, Mr. Ian Livingstone, would cover some of the latest developments in vocational curriculum developments in Australia (our nearest and most significant international influence in these matters) and, at the same time, extended an invitation to Mr. Bill Trengrove, Education Officer, Staff Development Centre, South Australian Department of Technical and Further Education (TAFE) to attend. Mr. Trengrove, came at his own expense and made a useful informal contribution, especially in describing what curriculum development methods were being used by South Australian TAFE staff.

Even so, it was not expected that in the short space of two days specific and detailed guidelines would be produced by, and for, participants. What was hoped for, however, was that particular issues would be identified and general guidelines would develop from the discussions resulting from the interaction between presenters and participants shared experiences. This Proceedings then is designed to document and summarise the discussions that took place and to provide the basis for appropriate and relevant guidelines.

In some cases embryonic guidelines were produced but in most cases this step has yet to be done and this unfulfilled expectation is mentioned again in the Final Word section of this Proceedings. In retrospect, given the wide diversity of approaches to curriculum development and evaluation and the different philosophical positions that seminar participants exhibited, it is clear that no one set of guidelines would have suited all-comers. This notwithstanding, this Proceedings should form a useful starting point for developing the kind of idiosyncratic and specialist industry and profession-related guidelines that are needed by a country going through the changes that face New Zealand as it tries to adjust to the demands of changing economic conditions in the Information Age.

The response to the publicity on the seminar indicated that people both inside and outside the formal education and training system wanted to participate in and share theirs and others experiences as well as seek answers to the problems that they were facing in their jobs as trainers and planners. The only limitation placed on those who could attend the seminar was dictated by the constraints of space, yet in the end the Working Party managed to accommodate all those who showed a strong interest in taking part.

Participants came from all walks of life and job backgrounds, but because of the cost of getting to Wellington most were from the North Island. There was a good representation from the Maori who were encouraged by the very nature of the structure of the seminar to play their part in the proceedings. This they did with noteworthy results and their contribution is covered in some detail below and mentioned later in this Proceedings. Also, while

there was good support from the business community, the majority of participants were involved in planning vocational training and education and came out of the formal education system.

The seminar programme contained important structural components that need explanation. The Working Party was aware that participants, coming as they did from a variety of backgrounds, would only take part and share their experiences (some of them painful and in some cases unflattering) if they felt that the seminar was planned in such a way that they could have the opportunity to speak and in a way that they felt comfortable about. Furthermore, knowing that some of the participants were coming from the areas of non-formal education (principally Access Programmes) and that some of these would be Maori, the Working Party attempted to structure the programme so that at some time during the two days there would be a time when everyone would have the opportunity to speak.

Such a plan had some difficulties associated with it. First, in all respects there had to be a compromise between the formal structured European/Pakeha method of running a seminar and the more informal Maori marae-based method of debate. Second, as the structure was a compromise most people, familiar as they were with only one method of doing business, would justifiably feel disappointed about a seminar format which was foreign to them. Even so it was, and is, important for New Zealanders to recognize cultural differences and the accompanying contrasts in working styles and methods that are a part of our bicultural/multicultural society. The Working Party makes no excuses for compromising the structure in this way for, as it turned out, the major issues that were teased out of the proceedings appear important enough and relevant enough to require attention before any significant change in curriculum development and evaluation in this country can hope to succeed. That some of the outcomes of the seminar were unexpected is all the more rewarding, thus indicating that the seminar was a timely event in the history of New Zealand vocational education and training.

The Working Party organised the two-day seminar programme in such a way that participants went progressively from formal presentations to less formal discussion groups on emergent issues and then finally to an informal and open second plenary session. This structure was designed to give all participants a chance to see eight examples of competency-based vocational training programmes so that they could establish a common knowledge base upon which to ground their considered opinions. This was followed by issue-specific workshops where, in small democratically led discussion groups, identified the main issues facing practitioners in the field before taking these into the open plenary session.

The last session was led by the seminar facilitator, Mr. Dean Nugent, and dealt with the broader issues that had arisen during the previous sessions. Expectations were that the Working Party and participants would combine at the end to plot future directions in vocational curriculum development and evaluation. Given that the seminar commenced with a Powhiri and concluded with a Poroporoaki, and given the flexible structure of the programme, it was expected that the Maori participants would find space and time to put forward their views while at the same time according other participants equal opportunities to do the same. It is a

measure of the openness of the plenary session that social and cultural issues were raised which caused some concern to the participants. This unexpected development diverted attention away from the task of seeking participant views on what should come out of the seminar to the broader issues facing the whole of New Zealand society. Now, the matter of what steps should be taken following the seminar has thus fallen to the Working Party.

In retrospect it was pleasing to see that the seminar essentially achieved its objectives as this Proceedings publication will confirm. The Minister set the scene with his account of changes in the economy, the apprenticeship system, national validation and Access. The Hon. Mr. Goff was followed by the four keynote speakers, whom it was noticed with interest by the Working Party, raised their concerns about what curriculum methods to use, the concept of "partnership", the values and beliefs that underlie the curriculum models chosen, and the flexibility in planning that is required to deal with future changes in the employment market; all timely matters requiring attention and definition.

Espousing or acknowledging the importance of CBE, the four keynote speakers were followed by the eight formal presenters who showed participants a representative cross-section of competency-based training approaches in New Zealand, at that time. No one presenter had the complete answer to deal with participants needs so the rest of the seminar programme was utilised in such a way to bring out the issues that were deemed crucial to the development of CBE in New Zealand. In some cases the opportunity was provided to determine how these issues might be resolved and to map out the basis for broad guidelines so that some practitioners could carry away ideas and suggestions to help them in their daily work. Nevertheless, there was not enough time available, and given the broad focus of the second plenary session, it was widely commented at the time that another day would have seen a more satisfactory conclusion.

In this respect the Working Party too would have to agree that more time was needed, but as the circumstances did not allow for this we are using this Proceedings and subsequent follow up sessions, mentioned in the Final Word section, to achieve a more comprehensive conclusion which hopefully will lead to the production of more detailed guidelines. This notwithstanding, the initiative for follow up work must come from the individuals and groups of individuals who feel a need to take the matters raised here a step further and deal with them in their own ways. This is probably the only conclusion that the Working Party can be expected to accommodate given our desire not to dictate any one approach.

There were some unforeseen outcomes, as already mentioned, but then this was to be expected given the backgrounds and needs of the participants. What the seminar appeared to do was send everyone away thinking about more than just curriculum-related matters. In fact the cardinal matters dealt with at the end focussed upon major social and cultural issues that face all New Zealanders. There is little point in ignoring these larger issues in the belief that if you look after the smaller job-related ones the larger cultural ones will take care of themselves. If these larger cultural issues are not addressed first then there will be little chance of achieving a satisfactory solution to the required

changes in New Zealand vocational education and training mentioned in the Minister's speech. Even though the Towards Competency seminar did not have the time available to deal with even one of these broader issues, it appears to the Working Party that the seminar itself was, nevertheless, a necessary small step towards realising an appropriate, acceptable and cost-effective working environment for future New Zealanders.

Chairman Working Party

TOWARDS COMPETENCY

Phil Goff

The holding of this seminar recognises the growing importance of, and interest in, competency-based vocational training in New Zealand. The Seminar has a practical focus of assisting those involved in making policy and those directly involved in the training process to develop and to evaluate vocational education and training.

Vocational education has a straightforward goal. It is to produce a work force with the skills and competencies required in today's economy to ensure that New Zealand is competitive in a demanding international environment. Many of the difficulties New Zealand is experiencing today are a result of its slowness to adapt to a changing world environment, and because of the protective and regulatory barriers built to protect our economy, but which only succeeded in making it less competitive. A belated recognition of this situation, and the heavy indebtedness which resulted from it have both meant that we are trying to compress 15 years of overdue change into 48 months. What that change has highlighted has been the inadequacy of New Zealand's performance in training its work force, and the structure within which that training has taken place.

New Zealand traditionally has put too little emphasis on the need for education and training. With full employment up to the late 1960s, and relatively highly paid unskilled work, New Zealanders developed too little commitment to participation in post-compulsory education and training. The participation rate of our 16 and 17 year olds in further education languished at around 74% of 16 year olds and only 46% of 17 year olds, while up to 90% of those of the same age in progressive economies such as Sweden, Japan and Germany were in formal training.

Our school system maintained far too long an external examination system in the sixth form which had a narrow academic focus and concentrated on excluding a large percentage from the education system - not to mention branding them as failures in a norm-referenced examination system. Our apprenticeship system, as a result of both employer and union attitudes, was slow to change from its traditional form. Too many employers opted for the easy alternative of importing their skilled labour requirements rather than providing training for the New Zealand work force. The traditional system maintained, and to some extent, still maintains, a time-serving rather than competency based system.

New Zealand's rapid structural change, and the wider international changes created by a movement from primary and secondary to tertiary sector employment, the explosion of knowledge and the development of information technology have all produced a sharper focus on the need for reform in education and training processes. Participation rates have expanded rapidly in the senior school and formal tertiary institutions. Between 1986 and 1987 there was an

8.2% increase in sixth form rolls and a 21.3% increase in seventh form rolls.

This trend was repeated in 1988. It reflects a broadening of the curriculum at Forms Six and Seven, the abolition of U.E., the development of school-to-work transition programmes and a growing awareness of the need for skills in a more difficult employment market. The trebling of places on polytechnic link courses for secondary students announced in the employment package, has also increased the relevance of schools.

Tertiary level education and training has also expanded at a phenomenal rate. Equivalent full-time students at polytechnics have increased over the four years to 1988 from 24,700 to 39,000, an increase of around 58%. Over the same period, equivalent full-time university students have gone up from 41,600 to 49,000, an increase of 18%.

As New Zealand moves to modernise, restructure and make its economy more competitive, it is essential that it develops higher level skills. It is resource demanding, with funding in the last three years alone in tertiary education up by 104% gross and 43% in real terms. It is, however, an investment that as a people we must make for social and economic reasons.

Changes have also been occurring, more quietly, in the apprenticeship area. Apprenticeship is New Zealand's major formal on-job training system. Progress by industry towards competency based training began in 1983 with the enactment of the apprenticeship act. One of the key purposes of apprenticeship reform is to introduce incremental moves towards competency based training, so that apprentices can complete their training when they have achieved defined standards of competence or performance.

As might be expected in such a traditional form of training, there has been some resistance to moving away from time-served completion of training. Nevertheless, in twelve trades involving around 41% of all apprentices, there has been a significant move in this direction to date. These trades include engineering, furniture, motor, retail, meat, glazing, men's hairdressing, refrigeration engineering, sheet metal, horticulture, baking, coach-building and radio and associated electronics.

Developments in two areas have laid the foundation to a more systematic approach to on-job training and the development of a competency based system of assessment. Training manuals set out the skills an apprentice must acquire and the standards which must be attained. Record books record the progress towards these skills. Over 17 trades have completed this process.

Training needs analysis is vital for the establishment of competency based training since it involves a precise identification of the range of skills required for a particular trade or occupation and the standards required. It also outlines how the skills are to be most effectively acquired. The commitment shown by industry to undertake systematic analysis of training needs has been very positive. To date, 33 out of 36 industries covered by the New Zealand apprenticeship committees have undertaken training needs analyses.

Future directions in apprenticeship reform include a simplified structure of administration involving a reduction in the number of national apprenticeship committees to perhaps 10, and a proposal to combine the local apprenticeship committees into a single local apprenticeship board. Secondly, there needs to be a new system for recognising vocational qualifications and using assessment methods based on competence.

The government has supported the establishment of a single national vocational qualifications body which would provide a national framework for vocational qualifications. It would set standards of competence specifying the core skills, knowledge, understanding and abilities needed for various occupations and levels within occupations.

This could be done through industry-led working groups organised by the NVQB. It would develop an appropriate qualifications structure for the certification of vocational skills. Thirdly, it would accredit training providers to conduct training leading to national qualifications at specified levels. It would monitor training providers standards of assessment using moderation procedures to ensure that assessment is fair, equitable, consistent and to the required standard. Finally, it would endorse certificates issued by accredited providers for courses meeting the stated validation criteria.

The Government's decision to establish a single NVQB is in line with the thrust to promote a more decentralised system. It is envisaged that the proposed validating body would help promote the undertaking of systematic training needs analysis, in which to develop a list of competencies for each vocational qualification. Training providers, including employers, can in turn develop, teach, assess and issue national certificates subject to quality control by the validating body. The Hawke Committee on post-compulsory education and training can be expected to develop further the framework for national qualifications².

The NVQB will fulfil the role currently carried out by the Trades Certification Board, the authority for advanced vocational awards and, to some extent, the Vocational Training Council. There are also, however, bodies dealing with secondary qualifications and degree level courses. There will be a need to consider whether an overall co-ordinating body will be needed to facilitate transference and cross-crediting between the various bodies. Consideration will also need to be given to the development of a modular system such as operates in Scotland under SCOTVEC as a further means to integrate and provide logical training advancement across different sectors of education, from senior school to access to tertiary institutions.

The movement in training and education will be towards a focus on outcomes, rather than as it has traditionally been, on inputs into the system. Assessment will be on the skill achieved rather than where or how it was acquired or how long it took to get it. Finally, I should mention access, not as an afterthought but as an

². This address was delivered before the Hawke Report was released.

integral part of a wider system of vocational education aimed at all levels.

Access as a programme was established because no existing body catered adequately for a growing number of unemployed people, disadvantaged in the labour market because of their lack of skills and consequently longer periods of being out of work. Because Access is deliberately targeted at those whose employment problems are greatest and who already failed in or have been failed by the formal education system, its outcomes will not be those expected in mainstream education and training.

This factor and the difficulty of limited job opportunities for those seeking to enter the work force without skills at the present time have led to criticism of Access, and proposals to replace it with make-work schemes. However, the truth is that even with economic recovery and job growth, employment opportunities in unskilled, manual work will continue to be limited. It is therefore vital that we have a programme designed to address the personal and vocational skill deficiencies of long-term unemployed people. World-wide, the experience has been that this ultimately is the most effective way of getting those people back into permanent, unsubsidised work.

Over the 15 months or so since access was launched, important advances have been made. The Department of Education has produced an outline of core competencies for access courses. There has been identified a major problem with the inadequate level of literacy and numeracy of up to 70% of its trainees and special steps have been taken to address this need. The concept of stair-casing has developed, where trainees are encouraged to graduate from life-skills based courses to more advanced courses and work-based training.

Work based training is becoming an increasingly important component of access. Work based training has produced good employment outcomes. In Northland, which has high unemployment, 56% of trainees are placed in employment at the conclusion of work based training. In Aorangi, 55% of such trainees find employment. Work based training has proved the most cost-effective form of training. In Nelson, training provider payments for work based training are 50% of those of other forms of training. On the West Coast, training on work based schemes are 25% of those of other courses. Work based training has also allowed a diverse range of training to be provided.

In conclusion, the last couple of years has seen the strengthening of mainstream vocational education in schools and polytechnics, the reform of on-job training through apprenticeships and the development of new schemes to meet specific needs of the disadvantaged. The reform process will continue, both in specific forms of training and in establishing a more integrated and comprehensive approach to vocational education and training.

THE MINISTER'S SPEECH: OVERVIEW AND COMMENT

In many respects the Minister's speech was eagerly awaited by a broad spectrum of interested parties working in the field of vocational education, training and research. People in the Vocational Training Council were especially interested in what he had to say because there were rumours that the VTC were going to be substantially restructured and the Industry Training Boards (ITB's) would almost certainly have to be self-funding as a result of pending changes to the education system in New Zealand. In his speech, the Hon. Mr Goff foreshadowed some of the changes that were soon to come to pass. Furthermore, he emphasized the government's firm commitment to a new, comprehensive and integrated approach to competency-based vocational education and training.

It is interesting to note that the Minister's speech falls roughly into four sections. The first covers the government's concern over the outdatedness of vocational education and training in New Zealand. In Mr. Goff's view this has been brought about by a traditional resistance to change, lack of commitment by industry to education and training, and the damage of a narrowly academic secondary school external examination system. He made the point that if the country is going to be competitive in the international marketplace, vocational education must produce a skilled and competent work force. But, before this could eventuate, he said, competency-based vocational education and training must be introduced into apprenticeship schemes throughout New Zealand.

In the second section of his speech, Minister Goff gave an example of what he meant about the need to change by drawing attention to recent, yet necessary, changes in the apprenticeship system. In his view this meant the wholesale deployment of competency-based training and, more importantly, competency-based assessment. He drew attention to the crucial role training needs analysis played in the development and evaluation of new curricula. He also drew attention to the need for, and government support for, "a new system for recognising vocational qualifications and using assessment methods based on competence." Calling this body the National Vocational Qualifications Board (NVQB) the Minister adopted the idea first mooted in the Probine/Fargher Report and later sanctioned by the Hawke Report in the form of NEQA. He viewed a single national body providing the necessary national framework as a necessary component in an integrated network of education and training outcomes if modularisation, cross-crediting and the transfer of credentials were to be made possible in "the new scheme of things".

In spelling out the functions of NVQB in the third quarter of his speech, the Minister made it clear that this new body would undertake the work of AAVA, TCB "and to a certain extent VTC." At the time of the Minister's speech it was not widely expected that VTC would be completely disestablished, but in retrospect (and given subsequent government action) this is exactly what the Minister was hinting would happen when he referred to the new role of the NVQB. He also hinted, at this time, that bodies dealing with "secondary qualifications and degree level courses" could also come under the auspices of the NVQB. Because it is

government policy to decentralise the training system (while centralising the accreditation system) the Minister's predictions, in this respect, have now come to pass.

This means then that while the then proposed governmental changes place the authority and responsibility for setting performance standards throughout all education and training systems within New Zealand in one organisation, they also place the responsibility for implementing modular, skill-based training systems in the country within the province of the same organisation. At least it is expected, from what the Minister was saying, that when standards fall in one part of NVQB's domain then this body will be able to rapidly respond to effect damage control.

Access is the name most readily associated with the Hon. Mr. Goff in his Labour portfolio. It was therefore not surprising that in the last quarter of his speech he should make special mention of the Access schemes and defend the government's efforts in providing training opportunities for the unemployed outside the formal education and training systems. In doing this he drew particular attention to the Department of Education's achievements in identifying core competencies and providing work-based training. On the other hand he acknowledged the extensive literacy and numeracy problems among the unemployed which required attention before they could learn the skills they needed to find and hold down a job.

All-in-all, he argued that the Access schemes had not only proved cost-effective, but had allowed for the provision of a diverse range of training opportunities. He promised that the reform processes of his government would continue "both in specific forms of training and in establishing a more integrated and comprehensive approach to vocational education and training."

This speech signalled the government's concern that training, and its validation, could no longer be left to diverse bodies each marching to the tune of different pipers. In sum, what the Minister was saying is that a competitive economy requires a skilled and flexible work force. The provision of such a work force could not be left to chance, hence the need for national coordination (ie. centralisation) and the power of universal fiats, including the "backwash" effect of national examinations, to bring about the required changes in vocational and professional curricula. In the short-term this may be the answer to New Zealand's need to quickly upgrade the skill levels of its workers, but in the long-term the end result is not so clear.

Graham Wagner

TOWARDS COMPETENCY: AN INDUSTRY VIEW

Ray Tayler

INTRODUCTION

It is entirely appropriate that the first of these four keynote addresses should carry the message of industry. The end-user of vocational education is industry, but since the beginning step in organising an instructional system must be to have a clear description of the expected outcomes, you have placed industry where it rightly belongs: at the front end of the curriculum design and evaluation process, since it alone must define the required outcomes.

Definitions

a) Vocational education may be defined as including all forms of preparation for the exercise of a specific calling, ranging from the acquisition of theoretical knowledge to practical training. It is accepted that the previously important distinction between training given by individual employers to their own workers, and the more theoretical education provided by publicly constituted authorities has become blurred.

Just as there must be a close integration between on-job and off-job training, so there must be a close working partnership between industry and polytechnics, each to contribute from their own particular expertise.

It is the responsibility of industry to define and determine its own needs and standards and the responsibility of polytechnics to determine the educational means to meet these needs.

The success of polytechnics in meeting industry needs should be judged on the relevance of their programmes to industry and the degree of competence achieved by their students in the skills required. The evaluation of competence achieved in applying the skills learned is a test of the system.

b) Competence may be defined as the demonstration of the application of a skill in a concrete situation to a required performance standard and tolerance. The dictionary meaning of COMPETENCE requires having sufficient skill and knowledge for the purpose:

- The purpose must be defined
- Sufficiency must be established.

A competency-based education system requires a clear description of the expected outcomes and a method of assessment or measurement to ensure that the expected outcomes have been achieved.

My definition of competence requires that a skill be applied

and that a performance standard be achieved in a manner which can be demonstrated. Competence implies "can-do" and to prove it, you do it.

c) Skill: Since competence involves the application of a skill, it would be just as well to define the word "skill" in the context of industry.

A vocational skill typically calls for the application of a body of theoretical knowledge of some depth and complexity to the solution of work-related problems, involving a number of variables in relation to data, people or things, and to the production of outputs to required standards and quality specifications.

The key points are:

1. application of complex knowledge;
2. solution of variable problems;
3. production of quality outputs.

A skill may be related to a task or activity or to a cluster of related tasks or activities.

Typically a vocational skill involves a number of cognitive, affective and psychomotor elements.

In industry we recognise that work is becoming increasingly skilled. Most occupations can be classified in degrees of skill, on a skills continuum. Unskilled work is becoming less and less in demand. Therefore school leavers, and those who aspire to post-compulsory education and training, require a good foundation on which vocational skills can be built.

It is therefore instructive to distinguish between prevocational and vocational skills.

Prevocational skills relate to those aspects of education which contribute to a learner's:

1. reasoning development and ability to communicate and follow instructions, and
2. acquisition of "tool" knowledge, such as language and numerical skills.

Prevocational skills are generic, or broad based, and form part of general educational foundation, whilst a vocational skill may also be broad based in its initial development, but moves towards specific vocational equipping for specialised functions.

CURRENT CURRICULUM DEVELOPMENT: DACUM

The DACUM method of developing a curriculum identifies within a job its areas of competence and their task related skills. This method of training needs analysis breaks down a job into major functions and then into task skills expressed in behavioural terms. These may be further analysed for training purposes into steps and sequences, and performance standards are identified.

This method, used widely in the United States and Canada, stands unchallenged as the pioneer curriculum development system for competency-based vocational training. It was created by practitioners to meet practical needs. From 1983 it was picked up in New Zealand by the printing and engineering industries and adopted subsequently by a whole host of trade and technical, and some professional occupations. 119 national DACUM projects have been completed by the Vocational Training Council alone.

The DACUM process is placed in the hands of those who best know the requirements of the job: skilled people actively involved in the working situation. A unique validation process enables management and other workers across an industry to confirm that the appropriate needs have been covered. It is crucial to the success of the initial analysis that it be done by industry itself.

The identification of on-job performance objectives may lead to:

- a review of the mix of on- and off-job training;
- the development of various training manuals and records;
- the development of off-job training curricula;
- a review of examination prescriptions.

In the last two cases the needs and standards of performance identified by industry have to be converted into specific learning objectives which calls for the expertise of educators.

In comparison to other methods of vocational curriculum design DACUM has the advantages of being efficient, cost-effective and relatively rapid. Because it allows industry to determine its own training needs there is an industry-side commitment to training. Furthermore, that industry is a well-informed one that owns its own training.

CURRENT ASSESSMENT PROCEDURES

Introduction

The concept of competence should provide a useful link between the world of work and the world of education.

Whatever else it might do, vocational education should fit people to carry out specific occupational functions; thus it needs to be utilitarian. The knowledge or theory taught should enhance the ability of students to perform in the spheres for which they are training. The result of vocational education must be the attainment of competence.

On-job assessment

For this reason we strongly support a competency-based system of on-job assessment adopted in the apprenticeship training manuals and record books by all trades resulting from apprenticeship reform. The DACUM-based training manual defines industry standards. These have been validated nationwide. The self-paced

training programme, divided into three stages of progression with no fixed time limit apart from the maximum three year guideline period, means that the apprentice, under close training and guidance, judges the appropriate moment at which he/she is ready to be assessed on the job by the supervisor. The supervisor uses the nationally validated standard to determine whether the trainee can do the tasks to the required level of competence.

In such a way industry may assess true competence on the job in a real work situation.

Off-job assessment

To what extent can workplace defined competence be assessed off the job? Formal polytechnic training must meet prescribed national standards defined by industry, as, for example, in the DACUM analysis method.

Until recently the assessment system in the trades area was entirely dominated by examinations. Now more and more apprentice trades have passed from externally-assessed qualifying examinations to off-job internal assessments at first and second qualifying level. Industry is reluctant to do away with final external written examinations for the award of Trade Certificate and other qualifications. These provide for a standardised summative assessment, on a national basis, at least of the content knowledge of the programme. They recognise cognitive skills such as comprehension, recall of facts and the ability to communicate facts and ideas in writing.

As already stated, vocational skills call for the application of a body of theoretical knowledge of some depth and complexity to the solution of work-related problems. This must be reflected in all assessment methods.

However, employers seek employees who can apply their knowledge-current examination assessment procedures tend only to identify how much of the subject knowledge has been absorbed rather than assess students' ability to use that knowledge in a practical way. Pen and paper examinations do not measure competence in the application of a skill, other than a pen and paper skill. Assessing people as competent automatically implies the possession of knowledge, but to assess them only as knowledgeable tells us nothing about their ability to use that knowledge. Written examinations have to do with the "know what" and to some extent with the "know how", but the best measure of "know how" is "show how".

Training for the future demands of industry requires further integration of on- and off-job programmes, and a practical application of theoretical input. There must be a greater focus on the assessment of competence off-the-job. Work sample and simulation tests may be appropriate. Oral tests, for example, could be incorporated into assessment procedures for occupations that involve client interaction. In other words "show-how" should be required in both on- and off-job settings.

In designing systems of assessment leading to certification care must be taken to develop ways of measuring other than cognitive skills. By limiting competence assessment to tests of knowledge,

training providers are excluding the psychomotor and affective domains.

For most certification requirements, tests of knowledge, rather than tests of the ability to use knowledge effectively, seem to be the rule.

It is therefore a logical and positive approach to shift away from the narrow concept of academic cognitive tests towards a broader assessment of competence.

There are two main referencing systems for assessment. The first of these is norm-referencing in which candidates are assumed to be distributed according to the normal probability curve - a distribution which may not reflect the actual distribution of competence in the candidate population.

In norm-referencing a predetermined percentage of candidates is expected to fail regardless of the competency level of the candidate sample. Comparing candidates' relative performance is not relevant to ascertaining whether or not a required competency level has been achieved.

In the move towards competency-based assessment employers generally support a criterion-referencing system, which measures performance against a defined standard. It contrasts actual performance with performance objectives rather than with performance of the peer group.

FUTURE DIRECTIONS

Curriculum development

The first generation of DACUM-analysis of vocational skills gives us job-specific, discrete skills which are easily validated and measured on the job.

The DACUM methodology has provided an occupational skills data base across all New Zealand skilled trades and a range of other occupations.

This database provides the prospect of identifying skill-clusters across specific occupations to develop underlying generic job skills and occupational training families.

But the job task analyses need to go beyond a mere listing of tasks, to specification of interpersonal skills and other behavioural and cognitive skills required for competence on the job.

The second generation of skills analysis requires the identification of generic, transferable competencies relevant to a range of jobs in a broad occupational family. These may be described as "process skills".

With new technologies and changing work content there is more demand for cross-sector, cross-company, broader based competence: the development of transferable multi-skills. Vocational education, while it ultimately fits people to carry out specific tasks, must aim first and foremost to educate people to be

versatile.

These "process skills" are the broad-based transferable skills which demonstrate ability in coping with change, with the unexpected. They demonstrate flexibility and other job-and life-enhancing competencies which a person needs to cope with unexpected and changing demands on- and off- the job. In terms of curriculum design and development, the key is the recognition by employers and educators of the need to acknowledge the importance of process skills. The challenge is to incorporate them into all aspects of curriculum design and development.

Development of appropriate certification and assessment methods

Certification should be a means of formally recognising competence, yet much of our current certification lacks a base for choosing indicators of competence or for designing measures related to competence in job performance.

Competence embodies qualities and consequences of performance in addition to intellectual or cognitive skills.

What is needed is a multi-variate approach to assessing competence: performance-based measures as well as pen and paper techniques.

Assessment needs to expand beyond the focus on cognitive skills to include motor, and job-related affective skills. Appropriate assessment techniques need to be found, therefore, to measure all competencies identified for the occupation.

Clear definitions of job competence would enable both the on- and off-job curricula to be designed, implemented and assessed against job performance outcomes.

National certification

Our certification standards must not only be competence-based but also nationally-based, to ensure consistency of standards, quality of work and portability of qualifications. We need to aim for national competence.

Industry is not prepared at this stage to see the control of trade and other occupational qualifications devolved to independent learning institutions simply on the basis of institute-based internal assessment of trainees on off-job block courses.

Furthermore, industry is not prepared to support local autonomy at the expense of national standards. There is strong opposition to any development of credentials on a local or regional basis since such credentials lack portability and national recognition.

There must be a continuing and close relationship between the on-job and off-job training providers, to enable co-ordination in the development of training proposals, the identification and analysis of training needs and the design, development and assessment of appropriate competency-based curricula.

Research requirements

Some research needs are related specifically to competency-based learning and assessment.

1. Those industries which have participated in DACUM training needs analysis have a good basis for determining the kinds of highly specialised knowledge and skills required; but there is a serious lack of knowledge about the generic requirements of jobs, which underpin the individual tasks people perform.
2. Research is also needed on ways to test for generic skills which would have utility across a broad range of occupations and levels.

Continued competence

A job analysis that is validated with respect to job outcomes should not be static because job requirements change according to new knowledge and technology, client needs, legislation and so forth. Rapid technological and scientific advances in the past two decades have hastened skill obsolescence which requires the continued acquisition of up-to-date knowledge. There are challenges to the "once competent, always competent" hidden premise of the certification system. This has implications for continuing and open education.

We have the instructional technology which enables self-paced, distance and other alternative learning modes. The new concept of learning centres as, for example, adopted by the State Services Commission provide individual, self-paced and self-contained training in a diverse range of vocational courses. Programmes are delivered by technological means: a combination of computer, video and audio tapes. As the "life-long learning" concept continues to gain wider acceptance and recognition in diverse fields, creative and innovative approaches to assuring continued competence become substantial challenges.

Recommendations for change

A three-way partnership of industry, education and certification must function to cultivate the skills necessary to accomplish the tasks of society and to maintain those skills in the face of technological advancement.

The three partners must work together, and be seen to work together, on a national basis. They must not function independently or co-operate only through some accidental congruence of self interests.

If certification is based on job-related competence, educators need to communicate closely with employers to understand what the job relevant skills are. A DACUM generated curriculum lends itself to the development of curriculum guides for off-job training providers and to criterion-referenced assessment, both of these components stemming from the initial validated job, task and training needs analyses.

The ideal model of curriculum design and development therefore is driven by job and task analyses. It is aimed at training people

for effective job performance.

This symposium is important in charting a course towards a more competent society in which the skills and abilities required for economic growth are fostered and given recognition. Let's produce "can-do" people for our future world.

THE ROLE OF THE POLICY-MAKER IN VOCATIONAL EDUCATION AND TRAINING

Catherine Gibson

It is my task this morning to comment on the roles and responsibilities of the policy-maker in vocational education and training curricula. I will do so in the context of the theme of this seminar - TOWARDS COMPETENCY - interpreted as excellence in performance generally, and not confined to the mere assessment of skills acquisition.

I will also acknowledge the economic and social requirements of New Zealanders in the 1990's and beyond, and the decentralisation of educational administration heralded by the Picot Report.

THE ECONOMIC AND SOCIAL ENVIRONMENT

Educational requirements reflect the rapid way in which the economy of New Zealand has undergone realignment in the last two decades. There are three major components in this change, distinct but interrelated.

First, from full employment based on a predictable demand for our traditional primary products we have moved to open competition in active and volatile world markets. An initial response through policies of subsidy and protectionism has left us with a formidable level of overseas debt, whose settlement now requires tight fiscal controls. Consequent market adjustments are giving us unemployment unparalleled since the 1930s. The need for industrial diversification to restore the balance is unquestionable and we have already taken our first unsteady steps along that road. There is a shortage of the intermediate job skills needed for diversification, however, which can only be satisfied in the long term through vocational education and training, appropriately developed, delivered and assessed.

Second, while primary production and processing industries are diminishing in economic importance, the service sector continues to grow. This is a reflection as much of technological innovation as of changing markets. The development of the micro-chip alone has resulted in the establishment of industries undreamed of in the safe and prosperous sixties. New information and control technologies penetrate every corner of our lives, from the milking shed to the share-broker's office. The competencies required of all who contribute to the New Zealand economy are changing in shape and form.

Third, our critical economic circumstances are placing unprecedented demand, on already burdened social services, those agencies which provide New Zealanders, in the words of the Royal Commission on Social Policy, with 'voices, choice, and safe prospect'. Good social service delivery requires human capabilities at least equal to those needed for industrial productivity.

THE VOCATIONAL EDUCATION AND TRAINING RESPONSE

Our ability to respond to such an overturning of accepted patterns of life and employment is as much dependent upon the effectiveness of our education and training system as on any other factor. We are learning very rapidly that we need to expand our national range of knowledge, skills and abilities. We now have to address the problem of providing them. There needs to be a better fit between what is demanded and what is supplied, between when skills are required and when they are available.

In the past, the determination of educational and training directions has focussed to a large extent on input controls. Examples are the adjustment of staff-student ratios, the allocation of ancillary assistance, and building codes. There has also been a focus on time, the period spent in study rather than its result. Currently this approach is being questioned. There is some argument to suggest that such controls may not have as direct a relevance to educational outcomes as was previously accepted, and that they may become bureaucratically entrenched as ends in themselves. The doubling of real expenditure per child over two decades in Australian schools, for example, seems to some observers to have achieved little for standards of literacy and numeracy [1] - although it may be that such less easily measured gains as improved reasoning skills and creativity have occurred.

The Picot Report [2] creates a new emphasis in educational practice, in recommending that educational institutions base their operations on a charter - which is partly, at least, a statement of objectives or outputs. Once education is perceived in terms of a desired result, curriculum becomes a focus for renewed attention, as the means by which results are achieved. Inputs can then be seen in terms of their relationship with outcomes - as resources for achievement rather than as criteria in themselves.

Picot is not alone in focussing on outputs. Overseas, the same trend is evident. In Victoria [3], for example, the entire funding process is based on a sequential model of determining objectives, planning teaching-learning strategies to achieve them, costing the required resources, and listing appropriate evaluation criteria. This closely follows the curriculum model developed by Tyler [4] as long ago as 1949. His fundamental questions

What educational purposes should the....[educational institution] seek to follow?

What educational experiences can be provided that are likely to attain those purposes?

How can those experiences effectively be organised?

and

How can we determine whether the purposes are being attained?

are as relevant today as they were in 1949.

There is some danger in overemphasising outputs in the search for educational quality, as there is risk in ignoring them. A lesson may be drawn here from industry, in a comparison of quality control and quality assurance. Quality control is based historically on inspection of finished products, of which the sub-standard are rejected - an interesting parallel with the old University Entrance examination system. Modern quality assurance emphasises all aspects of production equally - inputs, process and outputs - with the result that rejection rates become infinitesimal. The trend in modern educational planning may be to begin with desired results, but process and inputs must be equally valued.

Educational outcomes are, it must be acknowledged, notoriously difficult to measure. The favoured method in the past has been the type of norm-based examination to which I have just alluded and it is still true that, in much of the education system, examinations are accepted as an academic and vocational filter. It could be argued, however, that the pass mark is in truth a failure mark, arbitrarily set at a level which excludes a predetermined percentage of candidates regardless of their actual abilities.

Competency-based assessment stands the examination system on its head. Competency is an inclusive notion. Its labels are not 'success' and 'failure' but 'achieved' and 'yet to be achieved'. Input-oriented assumptions, about appropriate staff-student ratios, teaching and learning methods, buildings and equipment, texts and class materials, no longer apply, and are no longer the basis of funding and support. The task of the curriculum-maker becomes the creation of programmes for the achievement of objectives.

Competency-based assessment also encourages a focussing on equity issues in ways that traditional education methods do not. Curricula centred on competency must necessarily begin with where the student is in relation to the outcome desired, rather than with some body of knowledge or skills which is perceived to be a desirable acquisition. Thus, curriculum design must consider routinely needs analysis and counselling windows, to identify and assist those students who begin educational activity further from their objectives than those who already have a record of educational success.

THE DEVELOPMENT OF CURRICULUM

Having referred in passing to some components of curriculum, it seems appropriate to attempt a more precise description. Curriculum has been defined as any set of planned activities which assist learning [5]. It can occur in or out of the classroom, and in a variety of formats.

In planning curriculum, there are many models from which to choose, depending on the learning environment and context. Gay [6] recognises four major types - the academic, the experiential, the pragmatic, and the technical.

The academic model uses scholastic logic to shape curriculum content, in contrast with the experiential, which is student-centred and activity-based. The pragmatic model emphasises the

local context - that is, local social, cultural and political factors dictate the process rather than external conditions. The technical is a systems approach in which the learning outcome is predetermined, and is often referred to as competency-based education or CBE.

While this seminar focusses on competency in performance and, within it competency-based education, it is important to acknowledge that there are other models, alternative ways of achieving learning outcomes whose appropriateness depends on context. CBE is seen as most appropriate for vocational education.

Finch and Crunkilton [7] identify eight stages in the development of the CBE curriculum:

- * describing the life/work domain;
- * reviewing suitable resources;
- * identifying competencies;
- * verifying competencies;
- * identifying competency standards;
- * developing objectives and criterion-referenced measures;
- * developing instructional materials;
- * developing support plans;
- and
- * initiating the programme.

A critical element is the verification of competencies against required standards, for without standards there are no bench marks to determine whether or how well competencies have been achieved.

THE ROLE OF THE POLICY-MAKER

The policy-maker has the task of creating an environment in which successful curricula are devised and implemented, which may involve any level of activity from tendering on the professional education market to actual curriculum writing. Some recent experiences of the Tertiary Group of the Department of Education illustrate the point.

The Tertiary Group is one of the smaller Department units, with fewer than forty officers providing central co-ordination and professional oversight of vocational, transition, and non-formal education. It has no definitive curriculum development division, unlike its counterparts dealing with schools, although there is a small curriculum unit. There are also officers who take particular account of aspects of equity in curriculum development, to ensure that elements which have traditionally disadvantaged Maori, Pacific Islanders and women in vocational education and training are minimised and overcome. Two recent examples of this type of curriculum activity relate to the development of a tutor/teacher resource kit on countering sexism and of guidelines to ensure that, within nurse training curricula, the needs of the Maori community for health care are met.

The curriculum function of the Tertiary Group, and of the curriculum unit in particular, is to provide national direction, consultancy and support services for the design, development, implementation and evaluation of curricula in post-compulsory education and training. Its role is more usually that of

facilitator, sometimes author and publisher. Since it deals largely with semi-autonomous adult institutions and groups, the curricula it initiates are more likely to be in the form of national guidelines than detailed syllabuses.

The National Diploma in Accountancy, for example, began this year as a course of study in eight polytechnics. Its development was an exercise in liaison and co-ordination, in which Departmental officers were involved at all stages. National guidelines were developed by a short-life working group of the Authority for Advanced Vocational Awards, which organisation also validates the syllabus submitted by each polytechnic, accredits the polytechnic itself for teaching the Diploma, and moderates national standards of assessment. Curriculum content was predetermined by the requirements of the Society of Accountants, whose official 'body of knowledge' is its basis. The Tertiary Group has an ongoing commitment to funding and facilitating workshops for Diploma tutors, during which proposals for amendment of the curriculum will be formulated and teaching guidelines reviewed.

The National Certificate in Craft Design, now in its third year, demonstrates a wholly different approach. The concept of the Certificate arose within the Department, on the basis of a national study of polytechnic needs in art, craft and design and a national survey of crafts people by the Vocational Training Council and the New Zealand Crafts Council. The Departmental officer concerned initiated a number of meetings with craft tutors, and with the Crafts Council, from which national objectives for the Certificate emerged. These were basically vocational, in that the major aim of the Certificate is to train students for employment as crafts people. Because of the creative requirement, polytechnics developed their own curricula around the objectives, according to their particular philosophies and resources. Programmes were validated by the Department, but tutors were otherwise free to make their own decisions as to content and teaching style within national guidelines.

In ACCESS training, the Department was responsible for promoting the educational validity of programmes offered by a variety of institutional and private trainers. To this end, national curriculum guidelines were developed by a special advisory group under Departmental leadership and supported by professional working groups. The guidelines were expressed as a series of subject-related competencies, again leaving the training provider free to develop individual strategies for their achievement.

In each of these examples, the policy emphasis was not on content but on principles and outcomes.

A similar perspective characterises developments in contemporary education overseas. In much of Europe, in North America and in Australia, for example, social and economic change is occurring as rapidly and traumatically as in this country. Trade fluctuations, new technologies and additional demands upon social services have had similar effects on life, work and the business of government. One response of those countries' governments has been to recognise the importance of their education systems in promoting economic and social resilience and to initiate a re-examination of the principles on which education, and particularly vocational education and training, is designed.

In almost all cases, curriculum content has been delegated to the periphery, with the centre retaining oversight of outcomes and their evaluation. Competency-based assessment has been emphasised as a prime development, coupled with easier access to vocational education and training through flexibility of entry and re-entry. These moves are being supported by the establishment of vocational counselling networks, and by the implementation of new methodologies and delivery systems. Above all, they are focussing attention on the professional development of educators as needs analysts, counsellors, and curriculum specialists.

We have much to learn from these trends. Not least, which are relevant to our own situation and which bandwagons to let pass. Our demographic, social and economic framework has its own special characteristics, for which imported educational models are not necessarily the best match. Equivalent in area, for example, to the United Kingdom, we have one-twentieth of the population and a divergent cultural tradition. British solutions to educational needs must therefore be seen as options rather than exemplars.

However, it is undoubtedly true that the spirit which moves overseas educators has significance for New Zealand. As reaction to the Picot report has demonstrated, the devolutionary forces working through European and Australian schooling are operating in this country. Among the many implications, one is important to this gathering, and that is the shift of curriculum decision making away from the Department of Education towards the institutional provider. It follows the principle of subsidiarity, whose basis is that decisions should always be made at the smallest and lowest level unless there are irrefutable reasons for taking them higher. Institutions will, according to the needs of their clients, design and implement their own curricula for local markets, and the teachers themselves will be involved in curriculum development.

This raises a number of issues, since the burden on institutional staff will be dual. In the first place, they may no longer be bound to national syllabuses, but will have to devise and develop their own. In the second, the trend to competency-based assessment will require them to do this within terms of reference which are less than familiar. Their willingness to participate may also be influenced by philosophic and evidential opposition to both types of change.

There is widespread community belief, for example, that a national examination system is the only effective way of ensuring the overall quality of education. As a conviction it has its attractions. It limits the role of educators at the chalk face to teaching what is unarguably predetermined. It offers the employer some certainty that the graduate of polytechnic X is as well qualified as the graduate of polytechnic Y. It removes the uncomfortable implications of students participating in the planning of programmes.

The experience of Scotland in its introduction of the Sixteen Plus programme affords more practical grounds for caution. The Scottish Vocational Education Council's system embodies modularised units that link to form an articulated course of study tailored to the needs of the individual student. It is

competency-based, and institutions are theoretically free to develop their own responses to the desired outcomes of each unit. It appears on first impression to be an ideal development model.

In practice, many Scottish institutions have offered only reformatted versions of traditional programmes, and much of the brave new world has been, for convenience and possibly through lack of adequate resourcing, reconstructed with the worn out material of the old. Parallel development of identically based teaching units has led to much reinventing of the wheel and has also required cumbersome, time consuming and expensive monitoring of standards. The need for portability between institutions has encouraged a strait-jacketing of format that is sometimes educationally inappropriate [8].

This is not to say that there are faults inherent in a move to devolution and competency-based assessment, but simply that the system's framework needs as much attention as the curriculum framework if the desired outcomes are to be achieved. It is the policy-maker's role to argue that appropriate support systems be in place and operational before radical curriculum change is undertaken.

THE CONTEXT FOR POLICY-MAKING

The current social and economic context is one of change - in daily life, in job markets, in the educational system and in that system's administration.

It is necessary, therefore, that competency-based education remains responsive to change, to the evolving needs of its clients. Policy-makers must ensure that curriculum development is consistently futures-oriented, dynamic, open and equitable.

With the decentralisation thrust of curriculum responsibility, the co-ordinating role will assume even more importance. As Eisener puts it, in the context of North American education:

'What we find when we look at who does curriculum development and where and when it is done (is) a variety of groups engaged in the task. Teachers develop curriculum when they plan for their classes, school districts engage in curriculum development through the creation of materials to be used in the classrooms, professional and lay groups develop curricula when they create state frameworks for teaching in particular subject fields. Finally, educational laboratories, Research and Development centres, and commercial publishers engage in curriculum development through the production of materials' [9].

Maintaining links between the corresponding New Zealand groups will be a challenging task. There will have to be established clear and purposeful guidelines, backed by effective support systems, for the local makers of curriculum - for expertise in curriculum development is not achieved overnight. Participants will need to have the opportunity to train and to be thoroughly briefed in the principles and experience of competency-based education - which may be a multi-level process that begins with chief executives and filters down to tutorial staff when local

support structures are in place. Considerable success has been noted in England and Canada [10], where mutual assessment workshops for senior teachers and administrators have prepared the way for change of this type. It should be noted that, although such processes are cost-effective, they are not cost-free.

The policy-makers will be walking a fine line. They must both protect local ownership of curriculum and see that there is sufficient commonality to maintain society's confidence in the validity of the process - for there has to be, in the end, some form of validation of curricula and accountability for their outcomes.

CONCLUSION

In summary, I am suggesting that the role of the policy-maker in respect of vocational education and training curricula is one which involves the development of a framework of courses of action within which subsequent curricula-related activities are progressed. The role carries with it considerable responsibility. There is the need to monitor overseas trends and assess whether they have real validity in the New Zealand context - both socially and economically. There is a need to assess the practicality and effectiveness of the policy framework from an implementation viewpoint as well as an operational viewpoint.

A policy-maker, while needing to avoid being captured by detail, cannot afford to stand in isolation from reality. To achieve competency in economic performance - a recognised need in this country - a competent work force is required. That work force includes not only those who produce our goods and services directly. It also includes those who deliver and administer the education and training itself. It must also include policy-makers.

The challenge of competence, its meaning, its purpose, its measurement and achievement is applicable to us all.

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PROVIDERS

T.K.Royal

MIHI

Tena koutou, nga waka, nga reo, nga karangatanga maha i roto i te ahuatanga o teo ao hurihuri. Me mihi ki a ratou ma me nga mate kei runga i a tatou. No reira haere nga mate ki tua to te Arai ki Paerau ki te kainga tuturu.

Te kanohi ora he mihi tenei ki a koutou katoa. Kei te hari me te koa o te ngakau kia kite tatou ki a tatou i roto i te karanga o te ra. Tena hoki koutou katoa.

THE ISSUES

1. I am glad to be able to take part in this timely seminar reflecting the growing recognition of the need for further refinements in vocational training particularly with respect to competencies and the implications that this may have on curriculum developers and evaluators.

2. I am mindful of the fact that I should reflect, to the degree that I can, a provider's perspective. I find it comfortable to do so since my everyday reality is very much in the role of being a provider at Parumoana Community Polytechnic in Porirua³.

3. I wish to preface my address by providing a context, a framework, or a personal perspective on education generally. My movement from Auckland to Wellington in the early 70s to join the Maori and Pacific Island Directorate at Head Office, Department of Education, was deliberate. It was my intent to play my part in influencing policy with respect to the education of Maori pupils and the desire to increase the teaching of Maori language and culture in schools.

The move to Wellington reflected my view that the education system was, and still is, racist, even though it may be unintentional. I define racism as:

"Any attitude, action or institutional structure which subordinates a person or group because of their race...Racism is not just a matter of attitudes; actions and institutional structures can also be a form of racism".

Racism can be manifested individually, institutionally and culturally and is equally oppressive in its effects, whether it is intentional or unintentional. There is no question in my mind that our education system has not been particularly successful with Maori pupils and it is only recently that it has shown signs of reflecting biculturalism.

³. Parumoana has been changed to Whitireia. (Editor)

Statistical data from the Department of Education and submissions to the Royal Commission on Social Policy indicate the degree of racism, but it also indicates the growing concern for those who are victims of such a system.

Soon after arriving in Wellington I was made aware of another issue which had its context in the same social political model. I am, of course, referring to sexism in education. Like racism it may be defined:

"... as any attitude, action or institutional structure which subordinates a person or group on the basis of their gender".

4. Consequently, the framework of my administrative action is in the context of the eradication of racism and sexism in education. These are my terms of reference upon which Parumoana Community Polytechnic is founded. The drive towards autonomy, efficiency, accountability, responsiveness (words that are bandied around with much frequency nowadays) to me are simply sub-goals to the main over-riding goal of social equity.

5. That is where I am coming from. I make no apology for viewing education as a means to social justice - not only as a chance to seek employment but as a means to increase one's awareness of the world around us - of the socio-economic position of certain groups in society, and of life chances. Consequently any discussion on curriculum development or evaluation in vocational education must be from the point of view of social equity. All educational issues to me are set in this context.

6. Economic restructuring has not helped. The ranks of the unemployed grow daily. Government policies have or are about to reduce the size of virtually all government departments except the Department of Social Welfare. The pain of economic restructuring has been unevenly spread. It is understood that Maori and Pacific Island people are adversely affected more by unemployment which coincides with a high proportion of the Maori population - including North Auckland, Rotorua, East Coast and parts of Auckland and South Auckland.

7. The effect of unemployment - on esteem, health, housing, and social relationships - is devastating.

MAJOR CONSIDERATIONS

The key issues for providers of vocational education, such as Parumoana Community Polytechnic, are many. These are:

1. Curriculum Cohesion: Many parts of the system lack curriculum cohesion. The top end of secondary schools have been dominated traditionally by universities. Any attempt to develop a curriculum relationship such as a modular competency-based programme would be welcomed.

2. Cross-Crediting from one part of the system to the next should be expanded as an urgent consideration.

3. Course Construction which allows people to study in their own time at their own pace should be considered.

4. Alternative Learning Places: With the growth of technology people should be given a chance to study at home using TV or video as a learning device. In addition, mobile caravans to provide greater access to women should be normal equipment for all tertiary institutions.

5. Second Chance Education: Increasing funding for the development of curriculum serving people who wish to further education at a later age, because of their lack of entry qualifications is part of a new development which I welcome.

6. New Career Directions: Economic restructuring has left a number of people redundant and the need to develop courses for them has become more urgent than in the past.

7. Diversity of Adult Learning: Current trends indicate that adult learners are also growing in diversity ranging from school leavers to early retired workers spanning all occupational classes. Furthermore, economic conditions and social demands will require institutions to provide much more flexible timetables and courses to enable, for example, shift workers and home-based people to access educational opportunities, especially in subject areas that will lead to employment opportunities and/or retraining.

8. Cultural Influences on Programmes: Parumoana has developed a policy on bicultural/multicultural learning which pays attention not only to cross-cultural education programmes, but also to the whole question of bilingual and bicultural learning. In addition, the question of whether tutor-student inter-relationships are the same for all culturally different groups has to be seriously considered. Do Pacific Island students take the opportunity to question tutors when encouraged to do so. How do you evaluate students who engage in discussions against those who do not?

9. Cross-Cultural Learning Model: A new development at Parumoana is concerned with developing a cross-cultural learning model which assists tutors to understand what they are attempting to do when they teach cross-culturally. In addition, the method by which they measure cross-cultural learning is being investigated by us.

CONCLUSION

Time does not allow me to extend this paper and I am aware that there are many areas in curriculum development and evaluation which have been mentioned only in passing. The question as to the shape of the system in post-Picot times with respect to curriculum development and evaluation is yet to be answered fully. It is hoped that the shape of the tertiary sector will be made clearer when the PCET report is made available.

Kia ora koutou katoa

A RESEARCHER'S VIEWPOINT

Ian Livingstone

INTRODUCTION

The 1980s can be seen as a decade of change in the area of curriculum planning and evaluation in the vocational area. Until the 1970s the approach was very much prescription-driven. The examiner was chief, and the prescription defined what was going to be examined and hence what was likely to be taught. There has now been a clear move away from that approach, with assessment seen as very much more an integral part of the instructional process. Perhaps the first stages in that development were very detailed job analyses or needs analyses of the particular work functions required of employees. A strong emphasis on work-oriented skills rather than particular subject content developed. I believe we are now in another phase of curriculum development, with the use of applied research methods focussing on occupational structure and the need for change rather than on the requirements of a static work force. This change may have come about because of pressure from industry to adopt speedier, more thorough-going and efficient ways of determining training needs.

During this period NZCER has been approached on several occasions to give advice on competing models. This paper outlines a number of such models, but suggests that there is no one single method, no one right way, to carry out curriculum planning and development in vocational education.

CONSIDERATIONS

Three major considerations in curriculum development need to be borne in mind at the outset. The first is cost. Many occupational groups have quite small training budgets and are not able to contemplate the larger, more elaborate needs analyses. Such an analysis in the mid-70s of mathematics competencies necessary for carpentry training, carried out by Dr G.J.F. Hunt of Massey University, in collaboration with NZCER, proved to be a very extensive statistical exercise. It provided some interesting and detailed information, but the fieldwork and analysis were not cheap. It also took a long time. This is the second consideration. Speedy solutions to thoroughly dated curricula are now needed, and methods which can provide such solutions rapidly are more likely to find favour.

A further consideration is that of acceptance. A method is required which suits the particular occupational group. When there are clients who have a curriculum need, it is important that the few people who may claim some expertise in up-to-date approaches to curriculum development are sensitive to their specific concerns.

APPROACHES

There is no panacea to deal with all situations - not DACUM nor anything else. A variety of methods are required for a variety of needs. If research is nothing more esoteric than disciplined enquiry, the differing approaches presented here are research methods. To that extent, curriculum planning and development is, in its very essence, research. It requires research skills and it needs the knowledge of the field and of the various methods that might be available and could be used.

THREE MODELS

Researchers find models helpful as ways of describing reality, in this case, curriculum processes. Many possible frameworks exist, but three basic models are outlined here, drawn from O'Hanlon (1973-74):

I. The Management Model

This is the traditional school-based model, with a hierarchy of authority, and somebody at the top in charge. It is subject-centred, and may be prescription-driven, so that the examiner or examining authority is effectively controlling what is taught. In a more enlightened model, the education system itself and not the examiner, may have more control.

Under this model proposals for curriculum change are developed, often through an extensive consultative process with teachers or tutors, and appraised by system curriculum committees. The model is focussed on subject content, and goals are expressed in terms of what the institutions should teach the student and what topics have to be covered. Evaluation is based on examination results.

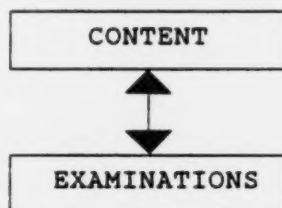


Figure 1
The Traditional Curriculum Planning Approach

The sorts of changes which can be carried out in this model tend to be tinkering and fine tuning. Syllabus revision groups ask: 'Whatever can we leave out of this syllabus? We've got to put in this new material - what can be left out?' The end result, after the agonising, is sometimes a syllabus that is packed too full and cannot be covered in the time allocated.

Under this model, curriculum guides, and scope and sequence charts are produced and in-service education courses are held to familiarise teachers with new material following curriculum reform. It is illustrated in Figure 1 above, and the two-way interaction between content and examination is significant. The course content clearly determines what shall be examined, but a

sequence of examinations over time also helps to define just how the content is to be treated, with what emphasis and to what depth.

II. The Humanistic/Liberal Model

This model is centred on people. It involves a decision-making process based upon open enquiry. A subject such as 'enhancing the quality of inner city life', or 'the skills required of a tutor' might well be covered in this sort of model. Here a group will come together in a decision-making process in which everybody is free to participate. Information is made available to all, and the decisions that are made are based upon the modification of value positions as the discussion progresses. These decisions are open for reconsideration at any time, in the light of new information.

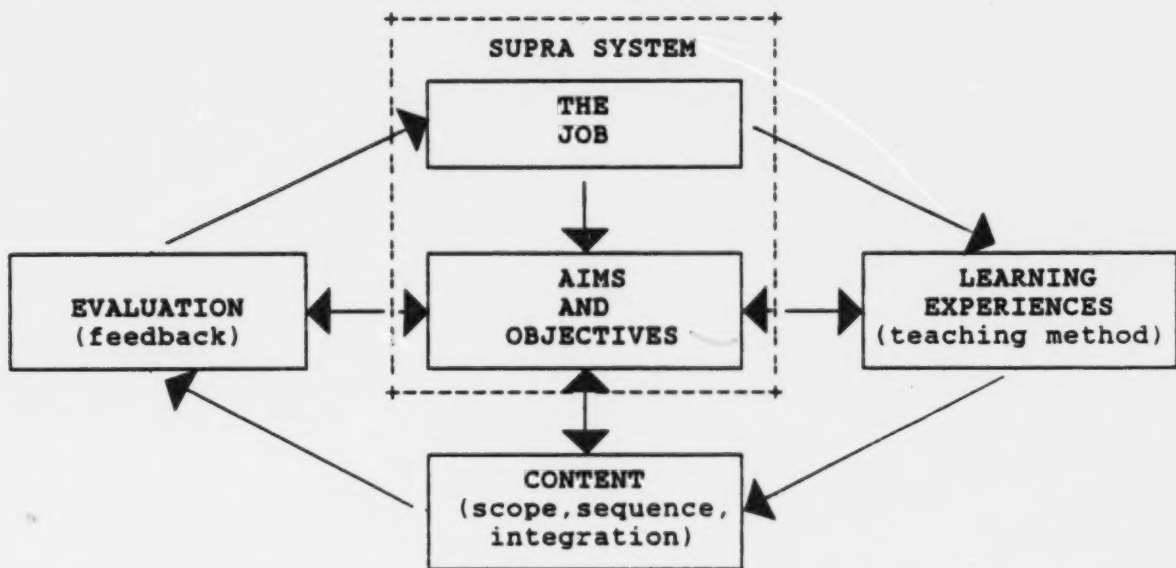
The intention here is to focus on problems that are significant to the learners themselves, and not issues that are related to something external. An informal approach will be used in evaluation - not an examination, but more likely self-report devices, checklists and/or interviews. This has been termed 'goal-free' evaluation. At the end of the day one asks, not what the examination success was, but what were the results of what was done. This model should not be overlooked when organisational reshaping is taking place.

III. The Systematic Model

This is the model that is probably of most interest to those in vocational education because there is a definable job 'out there' which can, and needs to be, defined in terms of specific skills, duties and tasks. This is the performance-based model that asks: What does the student have to do to become competent? If it is known where he or she is at now, the question is asked: What has to be done in order to move them to where one wants them to be? What competencies are required? What skills must be developed? Under this model, definite criteria must be established for the assessment of competency and students will be measured against these criteria to see whether or not mastery has been achieved at a pre-determined level.

Others at this seminar will be elaborating on this model in more depth, but Figure 2 may be useful in showing its main features. The 'supra system', the world 'out there', the job with its aims and objectives, is central. The education system, with its rather elaborate feed-forward and feedback loops, is intended to be responsive to the needs of the job.

The systematic, competency-based model is a very flexible model. Evaluation can take place at two levels. The way that the system is working can be evaluated as well as the output at the end. This is a significant feature of the model, and one which makes it appealing in vocational education.



NOTE: One- and two-way information flows are indicated by arrows

Figure 2
A Systematic Curriculum Model⁴

ISSUES TO BE ADDRESSED

Several issues need to be addressed when selecting a research strategy for curriculum development. The first is that there are three, and perhaps four, different curricula co-existing at any given time.

First there is the intended curriculum, that is, what is intended by those who are designing the curriculum. This is laid down in guidelines and encapsulated in the particular materials that are going to be used in the course. It may be an official syllabus committee, it may be the course facilitator that is doing the intending (if it is a very participative model), or it may be industry that is requiring that something shall be taught.

However, it is widely known that what is intended to be done is not always done. At the level of the individual classroom or workshop, there is an implemented curriculum, which is what is actually being taught. Tutors and teachers do not always teach all the syllabus. They often work under time pressure and have their own particular biases. They may have, for very good reasons, local variations that they choose to put into practice, so that what is actually implemented in the classrooms is not necessarily what is intended. This can lead to a lack of conformity in the system. A non-conformist system is not necessarily a bad one, and may in fact be a very good one, in

⁴. Taken from G.A.Wagner (1980), p.6.

certain circumstances. However, in the vocational area, a conformist system is likely to be most appropriate. This would apply particularly if it is competency-based and dependent upon a large number of industry requirements which are common throughout the country.

The third curriculum is the attained curriculum. This is what the students demonstrate they know or can actually do when assessed in an examination or practical situation. Ideally, the attained curriculum should match the implemented curriculum quite closely. However, we all know that this doesn't happen. And the closeness of the match, or the efficiency of the system is a measure of the link between those two curricula. A 50 or 60 percent pass rate is not an indicator of an efficient system.

But if the definition of curriculum is widened to include some unintended outcomes as well as intended ones, there is a hidden curriculum as well. This includes the values that are conveyed by the teacher, such things as a concern for people, a conservationist leaning or a perfectionist streak. What is left out of the curriculum can also be a covert curriculum which is being conveyed at the same time, because it is not deemed important enough to teach.

A second issue to be addressed here is the right balance between skills and underlying concepts - the degree of emphasis that should be placed on how to do things in relation to knowledge about them. In a recent research evaluation conducted by NZCER staff for the Civil Aviation Division of the Ministry of Transport (Project SAFE: Systems Approach to Flying: Evaluation) it was found that even though aero club students could fly a plane and had the skills to complete the first solo flight successfully, the actual knowledge that they possessed did not exceed, on average, 65% of what was hoped they would attain. This had been deemed to be critical knowledge for safe flying of light aircraft, following a detailed nationwide systems analysis.

Thirdly, the degree of emphasis on future directions needs to be considered. This was one of the disadvantages of some of the early task analyses. In the carpentry project mentioned above, a very fine-grained and detailed analysis of what was actually being performed was effected, but no assessment was made of what mathematics might need to be known in five or ten years time. As occupations are now changing very rapidly, there needs to be increased emphasis upon future directions in curriculum development exercises.

The next issue is the degree of emphasis that should be placed on quantitative versus qualitative methods. For example, of the work in which NZCER staff have been involved, the carpentry project was highly quantitative, the Project SAFE evaluation somewhat quantitative, while some of the work that has been done lately on contract to the Royal New Zealand Police College has been much more qualitative. Different occupations will demand different procedures, and flexibility is necessary.

Another concern is that of sampling bias. It is necessary to be aware that in selecting participants for groups engaged in curriculum development exercises, bias may be introduced. Groups should not be made up of committed people. A few skeptics are

needed to rock the boat. And it should be appreciated that at the end of the day there will be a variety of views on some issues.

The sixth issue is a knotty one. Should educators as well as industry people be involved in the initial stages of group process methods? Should the job requirements be paramount, or should some attention be paid at an early stage to the concerns of the educators? With the DACUM method the debate has centred on whether there should be representatives from the teaching institutions on the curriculum panels. This will no doubt be a topic for debate during this seminar.

The next issue relates to who controls the workshop output. The facilitator clearly has a very large role to play here. If he or she believes that the ideas coming forward are not going to work, (for example, the emerging curriculum is too full or packed with detail that is difficult to teach) what should happen? How directive should a facilitator be? The control of the output of the workshop is crucial, and an experienced facilitator is essential for good results.

Finally there is the extent and type of the follow-up. How involved should the facilitator be in giving subsequent advice. There has been some criticism in this country about the results of DACUM exercises being handed over as a package to the industry, but with insufficient follow-up or assistance given as to how they should be put into practice. Some discussion is needed here about the respective on-going roles of the facilitator and the industry representatives in putting new curricula into place.

CURRICULUM RESEARCH METHODS³

It is now appropriate to examine some of the methods of curriculum research that are available. These can be grouped as follows:

- A. Introductory
 - 1. Preliminary Investigation
 - 2. Exploratory Research
- B. Structured 'Brainstorming'
 - 3. Delphi Technique
 - 4. Nominal Group Technique
 - 5. DACUM Approach
 - 6. Search Conference
- C. Others
 - 7. Critical Incident Technique
 - 8. Force Field Analysis

1. Preliminary Investigation

While preliminary research is by nature exploratory, a distinction will be made between preliminary work of the kind described here and the techniques of exploratory (qualitative) research described later.

³. This section is an adaptation with minor changes from Anderson and Jones (1986), pp.6-20.

All curriculum development projects in any serious endeavour should include some form of preliminary investigation. Such investigation is important because sufficient information may be obtained which will simplify the curriculum research project by showing the extent of available knowledge (which may be quite considerable) and the presence of serious gaps. Moreover, suitable curriculum materials, or even a complete syllabus, may be uncovered during the preliminary investigation phase, enabling research strategies such as pre-testing or other forms of validation to be used to test the relevance of any existing syllabus.

2. Exploratory (Qualitative) Research Methods

a) **Uses:** To ascertain the broad thrust of a course offering; its general scope, the weight of emphasis to be given to the various segments of the programme, depth of coverage within each element and the way in which they might best be sequenced. Properly handled, exploratory research is particularly useful when little information is available about an occupation. It can help to give an understanding of its structure as a prelude to identifying specific data needs for curriculum design.

b) **Data Collection:** The first step is to decide the research questions which are to be explored, either in interviews with key informants or in group discussion. These will guide and focus the data collection and analysis phases. Examples of such questions are: In what ways is technological change altering the pattern of work skills in an occupation? and: What should be the central outcome of the course being designed/reviewed?

c) **Sample:** The composition of the sample should be decided according to what the researchers need to know, and this will depend on the scope of the project and the research questions being studied.

d) **Advantages claimed:** The strength of the exploratory research method lies in its focus on the broader picture, relating educational needs at the individual level to an understanding of occupational structure and change. The method's sensitivity in detecting change and its educational implications should help prevent the problem of preparing a course which is obsolete by the time it is implemented.

e) **Disadvantages:** The method places a premium on the ability to synthesise (join data) and to extrapolate (look beyond data), and requires a certain flexibility of approach. Since the usual method of data collection is by interview, skill is required in conducting relatively open and free-ranging interviews and analysing responses for main themes, while remaining alert for cracks or flaws in the emerging picture which should be followed up as leads for further exploration.

3. The Delphi Technique

a) **Uses:** To obtain consensus from a group of 'experts' about the likely pattern of future events and show where these experts disagree.

b) **Data Collection:** Generally, a series of questionnaires will be

mailed to an 'expert' panel. All responses are summarised and returned to the members with further questions of clarification until patterns of agreement and disagreement become clear. Usually two or three rounds of questionnaire administration and analysis are sufficient. The method can also be used during a conference. A questionnaire is written during the conference, administered to the participants, and after analysis the pooled results are returned to the group for rating or comment.

c) **Sample:** People should be chosen who are in a position to make informed comment on likely future trends. Thirty or more respondents would be a desirable number.

d) **Advantages claimed:** The method accesses people without requiring them to meet in person, saving time, travel and cost. It describes what key decision makers believe is technologically possible given particular constraints, and gives participants equal opportunities to set down their perceptions of future events, avoiding those psychological barriers to communication that can affect face-to-face group interaction. Participants have time to think and reflect before giving final judgments.

e) **Disadvantages:** The method assumes that the achievement of consensus within the panel renders the outcomes more believable, and that anonymous responses are more likely to be objective than those generated through face-to-face group processes. The method may under- or over- estimate the likelihood of future developments within an industry because individual desires may become imposed on the forecasting process. It also assumes that busy respondents will devote the necessary time to respond thoughtfully to a postal approach.

4. Nominal Group Technique (NGT)

a) **Uses:** To define a problem, generate solutions and establish priorities for action.

b) **Data Collection:** The Nominal Group Technique (NGT) requires a small group who meet in a brainstorming session. The process begins with individuals silently writing ideas. These are then listed, one from each member in turn, on large sheets of paper. The ideas are 'collapsed' to remove overlaps if needed. The list of items is ranked to establish group consensus as to priorities. Any additions are made, then the list is subjected to a final vote. The process is structured to limit group discussion in the idea-generating phase (silent writing of ideas) and the listing of these ideas (by limiting discussion to clarification only).

c) **Sample:** NGT appears to work best with groups of 8-10 people, although several groups can be run concurrently. Participants can be those in a position to possess expert or up-to-date knowledge of the area and/or those who will be required to implement the group decision.

d) **Advantages claimed:** The method appears to be especially effective when the participants are strongly motivated to attempt the task and can tolerate the rules of the method (e.g. the rule of no discussion except for clarification). It claims to encourage equal participation and reduce the effects of one or two participants dominating the session. Moreover, because the method

uses different procedures in the idea generation and idea evaluation phases, it is said to improve both the speed of generation of ideas and the quality of their evaluation. The method also gives a numerical weighting to the output and so can show what facets of the problem are seen as central, or what solutions seem most promising.

e) **Disadvantages:** A key to the method is the framing of the NGT question, which focusses the group's efforts. The NGT question can be specific, e.g. What subjects in the trade course should be reviewed? or broad, e.g. What will the plastics worker of the 1980s be required to know? But unless the NGT question is appropriate, the process can be impaired. Some experience is needed in formulating a question which is central to the issue being addressed, one that participants can relate to and understand. The level of abstraction required in the answer may need to be specified. The method may be less suitable for occasions when sharing and evaluating information, in open discussion, are important in generating solutions and laying the ground work for smooth implementation. The method can generate frustration if applied in an insensitive, excessively rule-guided way to a group who really need to talk out a problem as a prelude to tackling it in a systematic manner.

5. The DACUM method

a) **Uses:** To develop a training programme in a systematic manner, incorporating all aspects of a curriculum (syllabus, assessment and teaching resources) based upon the compilation of a detailed task analysis by a number of 'experts' via a structured group process.

b) **Data Collection:** Data on job competencies (duties, tasks, task elements) are collected from a panel of 'experts' in the occupational area being studied. In a structured workshop session managed by a skilful facilitator, the panel of experts is asked to define the occupational area in increasingly finer detail. Job categories are identified, followed by the major duties, component tasks and finally the skills, knowledge and attitudes related to the component tasks.

c) **Sample:** The DACUM workshop traditionally operates with about 6-14 experts, (i.e. people who are actually performing or supervising the job under study). Participants in the workshop should be representative of different skill strata within the occupational group.

d) **Advantages claimed:** The method appears to be quick and easy to manage. It is well-structured and business-like and seems to appeal to industry because it focusses on what the practitioner needs to be able to do on the job. The method is systematic and provides ordered data which are conducive to full-scale curriculum development activities where an entire instructional system is being developed.

e) **Disadvantages:** It has been argued that an instructional systems approach to training is too narrow and too inflexible to deal effectively with the learning requirements of adults, because it focusses on the analysis of the job, rather than the learning styles of the students. DACUM falls into this category.

Since the classical form of DACUM draws data solely from industry experts, it has been argued that a DACUM-derived curriculum may be poorly implemented by teachers. That is to say, because teachers and students are not a part of the analysis and design process, they are not committed to the curriculum when it is being implemented. To try to overcome this weakness, some versions of DACUM include teachers in the workshop process. Another possible weakness is that DACUM does not identify how an occupation is changing, although it is possible to add a concluding phase examining 'future trends'.

6. The Search Conference Method

a) **Uses:** To aid organisational development by setting directions for improving responsiveness to clients. In education, the procedure aims to assist people to make effective decisions now by clarifying what educational programme they want to deliver in the future, taking account of likely future trends and current constraints.

b) **Data Collection:** The method allows for a number of optional stages following the first step, which is a 'FUTURE SCAN' of forces which are shaping the future environment. The 'FUTURE SCAN' which focusses on events, trends or forces which are perceived to be shaping the future, may include segments which the conference considers the 'MOST DESIRABLE' and 'MOST PROBABLE' futures. The central principle underlying the Search Conference method is that plans made in response to a turbulent environment grow out of:

(i) shared ideals or values about what are the important goals of planning for the future of the system in question;

(ii) consideration of the constraints which must be taken into account in realistic planning.

c) **Sample:** The essential requirement is adequate representation of the major interested parties or 'stakeholders'. In curriculum research applications, these would include members of the occupational grouping, teachers, students, curriculum developers, administrators and other key decision makers. A sample size of around 30 is ideal, but Search Conferences can be run with as many as 150 people.

d) **Advantages claimed:** The method provides 'future-oriented' data from which to design a curriculum. This is particularly important in the design of vocational curricula for occupational areas undergoing change. The process tends to 'open the horizons' of participants ('FUTURE SCAN' leading to 'DESIRABLE FUTURES'), while keeping a firm footing in relation to implementation realities ('CONSTRAINTS'). Because of the representation of 'stakeholders' in the conference and their involvement in the research and action planning stages, the method is said to offer enhanced prospects of success.

e) **Disadvantages:** As yet we do not know how effective the method is in analysing the detail of competencies required to perform work in any given occupation. To apply the method, the facilitator requires a good understanding of how to work with a

group in an exploration of the wider influences upon an occupational grouping. Moreover, since each Search Conference must be tailored to the particular situation, a detailed understanding of the method is needed.

7. Critical Incident Technique

a) **Uses:** To obtain a description of behaviours (complete action sequences) that are 'critical', in terms of either success or failure, to the performance of a task, or to detect critical gaps in knowledge, e.g. 'never do A when B is happening', 'always do X before Y'.

b) **Data Collection:** 'Critical incidents' data can be collected by observers (researchers, supervisors) or the job holder. Data can include: what led up to the incident; what actions were effective (or ineffective); perceived consequences of the action; and whether the consequences were within the control of the job holder. Collection procedures can include recall, observation, interviews or questionnaires.

c) **Sample:** This comprises the job holders themselves.

d) **Advantages claimed:** Since the data are observable actions, the technique is objective rather than subjective, relying relatively little upon inference and interpretation. It draws out factual information of the "how to/how not to" type, rather than the "I think ..." type.

8. Force Field Analysis

a) **Uses:** To generate strategies for bringing about change by identifying the forces, both negative and positive, that are retarding it.

b) **Data Collection:** For each problem area or concern, the forces which might help in solving the problem are listed opposite the forces which might hinder the solution. The helping and hindering forces are then ranked from most to least important. After goals have been decided, action can be taken to either strengthen helping forces or to weaken hindering forces, or both.

c) **Sample:** A group of 4-8 people is desirable.

d) **Advantages claimed:** The method, in analysing change situations, has the advantages of offering a systematic approach to problem solving by teasing out the relevant forces and identifying the points at which changes should be made. It therefore provides a clear strategy for innovation, to strengthen specific helping forces, and weaken specific hindering forces. While not a curriculum research method in the formal sense, it does appear to offer a useful technique, if used following an NGT approach which locates the problem areas, to then tease apart the helping/hindering forces which bear on the problems identified.

Table 1 below summarises the eight techniques by providing a series of key questions to be asked as a guide in selecting a suitable method of curriculum research.

CONCLUSIONS AND FUTURE DIRECTIONS

Research into group processes in curriculum development has shown that:

- a) sound preliminary investigation is important
- b) there is value in using methods in combination to exploit strengths and decrease weaknesses
- c) it is important to enhance the skills of curriculum developers.

To summarise, curriculum development is an exercise in applied research. No one method is a panacea for all ills. They all have their strengths and their weaknesses and a multi-method approach is desirable. To use such an approach successfully requires broad skills, and the ability to recognize what might be the most appropriate combinations at any given time.

REFERENCES

Anderson, Tony and Jones, Neil, (1986) TAFE Curriculum Research : A Review of Group Process Methods - Summary, Adelaide, TAFE National Centre for Research and Development Ltd.

O'Hanlon, James, (1973/74) 'Three Models for the Curriculum Development Process', Informal Section/Curriculum Theory Networks 4:1, pp. 64-71.

Wagner, G. A. (1980) 'An Overview of the Systematic Approach to Curriculum Planning' : A paper prepared for the Vocational Training Council, unpublished, Wellington.

Table 1 : Questions Which Guide Selection of So-called 'Fast-Response' Curriculum Research Methods⁶

Key Question	Curriculum Research Method
What information is available and has a bearing on curriculum development in the area?	Preliminary Investigation
Is it desirable to describe the general field to be covered and to identify the main elements in this field and their interrelationships?	Exploratory research
Is the occupation undergoing substantial change?	Exploratory research The Delphi Method The Search Conference
Is the occupation relatively stable?	DACUM (or derivatives)
Is there group tension about the direction a curriculum review should take?	Search Conference Nominal Group Technique (Possibly Force Field Analysis)
Is urgent information needed about the critical knowledge needed to perform specific work functions?	Critical Incident Technique

THE FOUR KEYNOTE SPEAKERS : AN OVERVIEW

The four keynote speakers in this Towards Competency seminar agreed that the event was being held during a time of great change: a heady time that had begun to generate its own rhetoric about the future in education in New Zealand; the rhetoric of 'accountability', 'efficiency' and 'competency'. Whilst the four

⁶. This table is an adaptation of a similar one in Anderson and Jones (1986), p.6.

speakers agreed that changes in education (and vocational education) were inevitable, there were real differences of opinion about the shape, pace, and consequences of educational restructuring in New Zealand. Differences of opinion are visible in the following four addresses, in the varying interpretations of 'competency' and in assessments of the most satisfactory strategies for developing a curriculum.

Ray Taylor, speaking from the employer's perspective, argues that industry (the 'end-user') has first call in defining and determining its needs and necessary standards, with training institutions responsible for the ways and means of meeting such needs. The over-riding objectives of vocational training must be the attainment of competence; but more importantly, standards of competence must be nationally based to ensure consistency of attainment, quality of work, and 'portability' of qualifications.

Catherine Gibson, presenting the policy-maker's interpretation of competence, stresses that such judgments must account for today's changing economic and social climate, to accurately reflect a shift from 'success/failure' emphases, to 'achieved/yet to achieve' evaluations, in order to sustain a 'futures oriented, dynamic, open and equitable' system. In contrast to Ray Taylor, she places greater weight on devolution of responsibility for curriculum development to the local institution and local market level.

Turoa Royal, speaking from the provider's point-of-view and a Maori perspective, argues that issues of openness and equity have yet to be thoroughly addressed, with the disadvantaged continuing to be further handicapped by current ways of training and evaluation. Calling on examples from Parumoana Community Polytechnic, he argues for more culturally-sensitive learning programmes which accurately reflect the Maori approach to training, in addition to calling for innovative approaches to curriculum development.

Ian Livingstone, speaking from a researchers perspective, 'walked' the participants at the seminar through the various approaches currently used for curriculum planning and evaluation. Unlike Ray Taylor, who places faith in the DACUM method, Ian Livingstone argues that no single method is ideal for all situations. A multi-method approach is recommended, based on good research and consideration of current limits on training budgets and the need to get things done quickly.

These four key-note speakers tackle their topic from four quite different routes and their different responses demonstrate that there is as yet no consensus on the issue of curriculum development, evaluation of competency, and equity in education. Nevertheless, there are numerous meeting-points in the following four papers: we are in a time of unprecedented change in education; it is a time when old ways of doing things must be re-evaluated or even discarded; and all participants (providers, researchers, policy-makers, end-users) in vocational training must meet, in forums such as this Towards Competency seminar, in order to chart a future that will be of benefit to all.

Geoff Lealand

PRESENTATIONS/CARROUSEL WORKSHOPS

Practical Applications of Competency-based Vocational Curriculum Development and Evaluation: In this section of the programme participants were organised into six groups and rotated in carousel fashion among the six presenters on the afternoon of the first day. Twenty minutes was allowed for each presentation and five minutes for travel between presentation stations.

The seventh and eight presentations were done before all participants in the first half of the morning of the second day during two thirty-five minute slots. Unlike the previous day no time was available for discussion, although the presenter s responded to people seeking clarification on issues raised during their formal talks.

In the following six presentations, the presenters' notes are given followed by the comments that were recorded during, and after, the formal part of each session. For the last two presentations only the presenters' notes are given.

Presentation 1: Peer Group Assessment and Competency-based Training (Bernice Kelly - Dietitians Board)

A. Presentation:

COMPETENCY-BASED VOCATIONAL CURRICULUM DEVELOPMENT: THE DIETETIC PROFESSION'S EXPERIENCE

INTRODUCTION

The Dietitians Board (1) acting on the advice of NZCER adopted the DACUM Approach for a major revision of the training curriculum which was carried out in 1983.

AIM OF THE PROJECT

To develop a one year curriculum for post-graduate dietetic trainees to be undertaken at three training centres.

THE DACUM APPROACH

1. Definition

According to Adams: "A single sheet skill profile that serves both as a curriculum plan and an evaluation instrument for occupational training programmes." (2)

2. Achieving the Process

The principles laid down by Adams were followed in the selection of committees of dietetic practitioners and educators to work with

a coordinator, and in their activities:

(a) Committees' Activities

(i) Practitioners

- identified nine areas of competence required by entry-level dietitians after certification.
- defined and specified the skills for each competency; 130 separate skills were defined, based on the criteria, "the dietitian must be able to"
- made some assumptions about the content of the prerequisite home science course.
- defined the expected level of performance for each skill, namely "skilled", "medium", "low".

(ii) Educators

- Developed the outline plan prepared by the practitioners to include suggested:
 - * content and sequencing
 - * teaching methodology
 - * examination procedures

(b) Revision Sub-Committee: prepared the final DACUM Chart.

The work of the committees could have terminated at that point and the chart given to each training school to develop its own teaching plan. However, the Dietitians Board asked the sub-committee to develop an overall curriculum plan for use by the three training schools.

THE PROPOSED CURRICULUM PLAN

This incorporated inter alia:

1. Aims and objectives of the proposed curriculum
2. Areas of competency including weighting and time allocation
3. Skills development profiles, showing for each skill on the chart:
 - (a) learning objectives
 - (b) prerequisite skills
 - (c) time
 - (d) content
 - (e) learning activities
 - (f) evaluation methods
4. Suggested teaching plan

IMPLEMENTATION

1. Dietitians Board

Policy decisions made were:

- (a) Implement a pilot programme in one training school during 1986.
- (b) Assessment -

- (i) external; State Examination for Dietitians
- (ii) internal; of work undertaken throughout the training year

(c) Evaluation of the pilot programme during 1987

(d) Introduction of the curriculum in the other two hospital board training schools in 1988

2. Training School

The translation of the Curriculum Plan for implementation required the compilation of:

- (a) Study block and practical experience charts for the year;
- (b) Education manual.

ASSESSMENT OF PERFORMANCE

Every skill on the DACUM Chart is assessed according to the minimum level of competence indicated. The same assessment rating scale is used for each skill. Not all activities are rated on a numerical scale; these are rated "completed/not completed". Several performance skills are more critical than others. Special assessment sheets were devised for these, ie., a summative assessment:

1. External assessment = 60% Total work. Two papers:

- (a) Nutrition in Health and Disease
- (b) Food Service Management.

2. Internal Assessment = 40% Total mark. This covers the three domains of learning:

- (a) Cognitive - 10% (assignments, activities, study block tests)
- (b) Psychomotor - 30% (skills tested during the year and rated on 0 - 6 Rating Scale)
- (c) Affective - known as Intern Affect assessment.
- (d) Assessment Rating Scale - used for each performance skill according to the defined minimum skill level, S, M and L

EVALUATION OF PILOT PROGRAMME

An external validation review was carried out in 1987 by the Dietitians Board's Curriculum Steering Committee.

OUTCOME

1. Advantages

- (a) An open participating method which involved many dietitians, and other related professionals.
- (b) Is "learner centered" not "educator centered"
- (c) The new curriculum candidates were not disadvantaged in the State Examination for Dietitians.

2. Disadvantages

- (a) As carried out, the Committee stages were too short.
- (b) Assessment of performance using rating scale has been time-consuming.

CONCLUSION

The use of the DACUM Approach for curriculum developments for the dietetic training has been effective and efficient.

REFERENCES

Adams R.E. (1975), DACUM Approach to Curriculum, Learning, and Evaluation of Occupational Training, second edition, Department of Regional Economic Expansion, Nova Scotia, Canada.

Dietitians Act, 1950.

B. Comments:

Many of the participant's questions focussed on the assessment of trainee dietitians by the Dietitian Board and the three training school tutors. Competency-based rating scales, and their use in measuring complex human performance, were regarded with some suspicion by some participants who doubted the ability of tutors to make clear distinctions between scales. There were those who wondered why a competent/not competent rating was not used to distinguish mastery. Others queried the ability of the curriculum planners to define the skills and asked if there had been any confusion arising from different schools interpreting the skills profile definitions differently. Some asked: If the curriculum was competency-based why were there external examinations? Ms. Kelly responded that the Board was still in transition as far as examinations were concerned, but that when initial implementation difficulties had been ironed out the Board would consider the schools undertaking most of the assessment. At least, she was pleased to say, in a recent evaluation of the new curriculum it was found that no trainee was disadvantaged by the new approach. Ms. Kelly also said that the new curriculum approach had the advantages of being an open method, involved many people at the planning stage, was learner-centred, straightforward in conception, inexpensive to operate, easily organised and well received by trainees and tutors. In fact, while it is harder to find evidence that the trainees are more competent on the job (it will take some time for this evidence to come to hand) under the new system the trainees, Ms. Kelly said, felt far more confident about what they were doing out on the job than those trained under the old system.

Presentation 2: Competency-based Curricula in Agriculture Training (Ray Craven - Ministry of Agriculture and Fisheries)

A. Presentation:

EXPERIENTIAL MASTERY LEARNING*

INTRODUCTION

Flock House is an agricultural education centre situated 14 km from Bulls. Over a period of eight years the educational staff

have developed a form of competency-based education. It is referred to as "Experiential Mastery Learning" (EML). It seeks to incorporate the features of both mastery and experiential learning. It has been developed and used for three major courses. These are the Land Settlement course, the Vocational Agriculture courses and a Certificate in Horse Husbandry course. This paper summarises key elements of mastery and experiential learning, sets out the main features of experiential mastery learning as operated at Flock House, and sets out some of the outcomes of the Flock House courses.

MASTERY LEARNING

Benjamin S. Bloom (1979) the founder of modern mastery learning had this to say: Virtually all students can learn excellently if

- * there is some clear criterion of what constitutes mastery;
- * the approach is systematic;
- * students are helped when and where they have learning difficulties;
- * the students are given sufficient time to achieve mastery;

A key part of the Mastery Learning approach is the aim to enable "almost all" the learners to develop mastery.

Herbert J. Walberg (1985) has pointed out that mastery learning can be traced back to Aristotle. Walberg concludes that "Mastery learning is based on ancient educational wisdom:

stimulate learners with effective opportunities;
engage their active participation;
reinforce desirable responses;
correct mistakes; and
keep goals, means, and assessment well aligned."

THE FLOCK HOUSE VOCATIONAL AGRICULTURE COURSE

This course is for students working towards the Trades Certification Boards Certificate in Farming. In 1987 the Flock House course was changed from a one year course to 12 weeks. The time is purely for student planning, and to meet funding criteria.

The objectives of the course are:

- the mastery of 60 farm tasks;
- the mastery of one contract skill.

The contract skills available include shearing to the Wool Boards Junior Certificate (15 sheep per house) standard and fencing to a comparable standard. The students who took the one year course had these same objectives plus the completion of an enterprise project.

Outcomes: The outcomes are set out in the table below:

Table 1: VOCATIONAL AGRICULTURE COURSE
Student Achievements

Course	Number	Total Tasks	Mean Student	Contract Skills	
1987 Autumn	30	1964	65.5	23	
1987 Winter	26	1905	73	34	
1987 Spring	11	724	65.8	6	(80/3)
1988 Autumn	10	751	75.1	10	(82/3)
TOTALS	77	5344	69.4	73	

The range of tasks mastered was from 54 to 89. A number of students mastered over 80 tasks and three contract skills in the 12 week period.

The course was offered on an open exit basis. However, in all cases students chose to stay on and master more tasks.

EXPERIENTIAL LEARNING

The major example of experiential learning has been the "Enterprise Project". This involved the operation of a prime lamb enterprise on a one hectare farmlet. Each student was allocated, by ballot, a one hectare area of land. They were expected to build their learning around a "Calendar of Decisions". For example one of their first decisions was to decide how many sheep to run. The students were required to complete, for each "decision", the following five activities:

- Planning
- Implementation;
- Recording;
- Analysing; and
- Recommending.

To cover many of the written aspects special work sheets were developed.

EXPERIENTIAL LEARNING

David A. Kolb (1984) has defined learning from the "experiential" perspective as: "Learning is the process whereby knowledge is created through the transformation of experience". This is an approach where the learning takes place in situations, and with resources, as near the "real world" as possible. It is as near the real world as possible not necessarily "the" real world. The "Case Study" method is widely used in experiential learning programmes.

EXPERIENTIAL MASTERY LEARNING

Experiential Mastery Learning, as developed at Flock House, is a system of learning that incorporates the features of both Mastery Learning and Experiential Learning. It is a system that seeks to

enable students to:

* master skills	SKILLS
* that the person needs	NEEDS
* to a clearly defined standard	OBJECTIVES
* by practicing	PRACTICE
* with realistic resources	RESOURCES
* so that students can proceed at their pace	SELF-PACED
* and obtain assistance when and where it is needed	ASSISTANCE
* to achieve, by demonstration, mastery	DEMONSTRATED MASTERY

(Note: The term skills is not limited to physical manipulative activities. David Pratt (1980) claims that "Two main areas of skills may be distinguished. Cognitive skills included such abilities as recognition, discrimination, analysis, and problem solving. Motor skills relate to control of physical movement primarily through muscular operation and range from the manipulative use of fingers to gross motor skills such as running and swimming.")

MODULE STRUCTURE USED AT FLOCK HOUSE

The major module resource that is provided for students is referred as the "Learning Guide". The Learning Guides used in the Vocational Agriculture and the Certificate in Horse Husbandry courses have four major sections. These are:

(i) The Mastery Demonstration Requirements). This section sets out, in behavioral terms, what the learner has to do to demonstrate mastery.

(ii) Practice Opportunities. The emphasis is on activities that allow the students to practice with resources that are as near the real world as possible. Thus each Learning Guide includes at least one "live practice" opportunity. This may involve practicing the whole task or just one part of the task. Other practice opportunities involve the use of printed material and others involve the observation of video programmes.

(iii) Mastery Demonstration Work Sheets. These are the work sheets on which learners demonstrate their mastery where writing is involved. The writing may involve recall of information, recording observations, analysis of data, or the completion of calculations.

(iv) Mastery Demonstration or Qualifying Performance Checklists. The criteria that have to be met in demonstrating mastery of a skill are listed on the Mastery Demonstration Checklist. This is completed by a course manager as he observes the student performing the skill.

MASTERY DEMONSTRATION COMPONENTS

Trade Certificate in Farming tasks form the major part of the Vocational Agriculture course. The approach adopted, for each task, has been to have three components each treated differently. The three components are:

"Explaining" - This component covers the terms, rules, and procedures involved in performing the skill; which leads to producing "Evidence of Experience" - This normally happens during the course of practicing the skill. But it may have occurred at some other time and in some other place; which leads to completing the "Qualifying Performance". This almost always involves performing the task in a "real world" situation to the standards set out in the Mastery Demonstration Requirements section of the module learning guide.

The outcome of this approach included: self-directed learning; extended learning (the students explored some areas to a greater depth than using the previous traditional approaches); positive competition; (students were motivated to perform well in all aspects of the project to see what targets could be achieved. This was both for personal and relative achievement); tutors were perceived as a resource (this contrasted with the previous situation where the tutor was perceived more in the role of a teacher); the students developed a holistic approach to farming rather than compartmentalised view (the inter-relationships between soils, plants, animals, pests and diseases, fencing and financial factors were developed in a way not achieved in traditional approaches); the students developed both self confidence and responsibility; and they mastered many cognitive and physical skills.

CONCLUSION

We believe that the Flock House experience has demonstrated that it is possible to combine the features of Mastery Learning and Experiential Learning. Our limiting factor was the production of appropriate resources, including staff. Even with some limiting factors, consistent with the claims of Mastery Learning, "almost all the students learnt excellently". Practically all the students achieved the course objectives. Certainly, in the case of the Enterprise Projects, the students "created knowledge" and developed skills "through the transformation of experience".

REFERENCES

Bloom, Benjamin S. (1976), Human Characteristics and School Learning, McGraw-Hill: New York.

Kolb, David A. 1984 Experiential Learning - Experience as the source of Learning and Development, Prentice-Hall: New Jersey, p.38.

Pratt, David 1980 Curriculum Design and Development, Harcourt Brace Jovanovich, Inc.: New York, p.175.

Walberg, Herbert J. (1985) "Examining the Theory, Practice, and Outcomes of Mastery Learning" in Levine, Daniel U. Improving Student Achievement Through Mastery Learning Programs, Jossey-

B. Comments:

The blending of mastery and experiential learning in the Flock House agricultural-based programmes intrigued some participants. Questions focussed on the way performance in manual skills was related to performance in knowledge topics and the obvious difficulty some tutors had in responding to the self-paced course work. Ray Craven expounded the virtues of the programme pointing out that, while in the new role as a resource person the tutor had to be more approachable, the approach to learning was holistic, and the sense of achievement and mastery in the programme saw the development of a new sense of confidence and responsibility in the students. Even so some participants worried about the accuracy of the precise definition statements and clear-cut assessment of tasks, the fact that some tutors could not accept this style of teaching, and the need for highly motivated students to ensure success in the programme. Mr. Craven said that in their experience these difficulties were successfully resolved to a point where a more appropriate student-centred learning system had evolved.

Presentation 3: Competency-based Education in the Service Sector
(John Olds - BNZ Training Centre)

A. Presentation:

CBI TRAINING IN BNZ

BNZ commenced CBI training in 1979 and how well this method has worked for us is summarised in the attached extract from the Vocational Training Council bulletin of March this year. In this summary reference is also made to some of the drawbacks of CBI from our point-of-view. While CBI may be well suited to react to minor changes, the major changes that have occurred in BNZ over the past 18 months/two years have meant increasing amounts of time and money are now required to re-design, re-type and re-print CBI course material. In some instances entire course modules have been rendered obsolete by a systems change and there are significant time-frames from commencement of re-writing a course to completion necessitating "stand alongside" training in some instances to cover obsolete material pending a re-write. One of our courses has been almost completely re-written three times in two years.

Two changes have been made in an endeavour to reduce the number of amendments:

1. As a change to a Bank fee can affect a number of course modules, fee cards have been introduced which can be referred to at appropriate points in various modules and can be updated relatively quickly.
2. Introduction of "flexi-modules". These are modules that can apply to other parts of a course or other courses and were introduced to

reduce amendments to one flexi-module rather than have to make the same amendment to a number of modules.

Summary

Because of the above drawbacks BNZ made the decision late last year to move away from paper-based CBI training and proceed with Computer Based Training (CBT). A project team commenced operations in April this year and the project has a four year time frame. Substantial cost savings can be achieved through this method of training not only for the Training Centres but for our network in terms of them not having to pay travel costs to the Training Centres which was another drawback mentioned in the attached paper. We will also be in a position to match the speed of change with rapid amendment of courses.

CRI AT THE BNZ by Myra Frew (*)

Anyone going into the local branch of their Bank will be aware that there are a variety of different staff - tellers, customers enquiries and loans departments staff, to name but a few. All require technical training. Take the number of staff in one branch, multiply it by the number of branches nationwide and you'll get some idea of the enormous amount of time and money invested in training. It follows then that the Bank of New Zealand, as the country's largest Bank, has the biggest investment in training.

In 1979 the BNZ made a commitment to carry out the technical training of its staff in a more structured and consistent way. A suitable approach, which would meet the needs of the organisation while at the same time satisfying the requirements of a diverse range of staff, was sought.

The method of training known as Criterion Reference Instruction (CRI) fitted the bill and the BNZ decided to opt for this approach. Although the Company refer to it as Competency Based Instruction (CBI) it is, however, the same animal as CRI.

There are several features which made this form of training a suitable choice for the BNZ, including the following:

- . A careful analysis is carried out to identify the skills required for each job.
- . Objectives are developed for each skill area and are stated in performance terms.
- . Course participants have a focus for their learning right from the start because, from the objective, they know what they should be learning.
- . Participants work individually (or in groups) to suit their own pace of learning. They can spend more time on particularly weak areas and less time on areas where they already have knowledge. There is no boredom from sitting through a lecture on material they already know!
- . As each section of work (module) is completed, participants take

a test of competence, which can be written or practical. For example, the final module of the teller's course is a 'mini teller's day'. This requires participants to stand in a teller's box and cash cheques, handle change transactions, accept cheques and cash for deposit and use a terminal to process transactions.

. Participants are coached until they reach the desired level of competence. At the end of the module, a Training Officer checks and discusses the work with the participant. Provided the criteria stated in the objective have been met, the participant is signed off and begins the next module. If the participant is judged not yet competent he or she will be asked to either practice a skill, do some more reading or be coached by the Training Officer until competence is achieved.

. On completion of the course, the individual staff member is ready to return to the branch and begin work with the minimum of support.

In addition to the above listed advantages of CRI, there are other major benefits in adopting this method of training. Staff members have the chance to practice the skills they need in a supportive environment, under the guidance of a skilled trainer and away from the pressures of a busy branch office. They learn 'good' work routine instead of picking up someone else's bad habits, as can happen when training is solely on-the-job.

Whilst there are drawbacks, these can be related more to the size of the Bank and the complexity of its operations rather than the method of training. For example, there are high costs in travel and accommodation for those participants who do not live near a Training Centre. There is also the difficulty of keeping courses up to date in the face of constant changes like new technology, new procedures and changing interest rates and bank charges.

Training is done at the BNZ's two main Training Centres in Lower Hutt and Auckland. In addition there are District Training Offices in Hamilton, Palmerston North, Christchurch and Dunedin.

Courses are designed by a team in the Lower Hutt Training Centre. A pilot course is run, any necessary changes are made and Training Officers learn how to manage the course.

To date, at a conservative estimate, approximately 16,000 people in New Zealand have been trained in teller's duties, customer enquiries, customer records, loans, administration, term deposits, overseas funds transfers and other skills.

The BNZ has a reputation for being in the forefront of training in New Zealand and is constantly reviewing its methods. The next logical step is to use computer-assisted instruction to teach technical skills. Its an exciting world of training at the BNZ!

(* Myra Frew is as Training Executive at the Bank of New Zealand's Auckland Training Centre.)

B. Comments:

Mr. John Olds answered questions throughout his presentation. The participants were interested primarily in how the CBI modules were developed and how they were used by the trainees. Concern was expressed about the narrow task-oriented nature of the training and the fact that the trainees had no say in planning, implementing or evaluating the training modules. Mr. Olds explained that "What's decided is that which a person needs to know to perform the job; what is relevant for present needs." In this respect it was the trading bank, not the individual, who decided what training for present needs should be. This led into a discussion on record keeping and the ownership of assessment⁷. In reply to questions about an individuals access to their training records Mr. Olds intimated that "assessment belongs to the BNZ". This clearly did not satisfy a number of participants who believed that information on the assessment of individuals should belong to those individuals. Nevertheless, that issue aside, Mr. Olds was able to argue that the value of CBI related as much to aiding the tutors as to benefitting the trainees. In response to questions on how tutors had responded to this kind of instructional style, Mr. Olds admitted that some tutors found it hard to switch from stand-up teaching to CBI tutorials. He believed that this problem would be resolved when the bank went over to computer-based training.

Presentation 4: Management of Evaluation (Mary Boyle - Waikato Polytechnic)

A. Presentation:

THE EFFECT OF THE MANAGEMENT OF EVALUATION, ON THE EVALUATION PROCESS, IN FORMAL LEARNING

The link between managing the evaluation of courses, and the evaluation process itself, determines the competency of the whole process. Structures, administration and the management of evaluation, need to be based on the professional goals of competency based learning objectives. Competency involves planning the learning event with competency based learning objectives, and evaluating those objectives to determine if learning has taken place. But efficiency in this sphere, is dependent on supportive management in terms of administering these goals, by objective and professional planning.

Efficiency in evaluation of courses, on a national basis needs regular interaction between the administrative structures and the education and training providers. A national evaluation process is concerned firstly with policy issues that give the controlling authority its value system on evaluation and assessment. Policy decisions affect all user groups of evaluation, such as the monitoring groups, examiners and markers and therefore need to be consistently applied in the administration of assessment, as well

⁷. The concern here over the ownership of records comes mainly from the Department of Education's interest in achievement records and achievement assesement practices emanating out of the United Kingdom. Whether employers need to heed such developments in the school sector is a moot point. (Editor)

as in the professional process of assessing a candidate's performance. This consistency of approach by all groups and individuals engaged in evaluation, can be aided considerably by addressing some common issues. The following issues need to be addressed as policy issues in order to have their credence accepted by all parties and they need to be available in a published form for user groups to consult and to return to, for classification in their decision making. They need to have a high profile in the planning of the assessment of each subject area.

EVALUATION POLICY ISSUES

The ROLES of individuals and of groups involved in the evaluation process, need to be specified, i.e. the roles of boards, monitoring and syllabus committees, the examiners and marker of papers. The roles of each entity needs to be identified so that decisions can be made objectively, and so that each of the groups know the roles of those in other groups. Individuals and groups in the assessment process, need to have their RESPONSIBILITIES clearly stated in written form. There is also a need to state the boundaries of their decision making so that others in the process can clearly identify their own role, in relation to other groups. TERMS OF REFERENCE for each group need to be detailed in precise terms in order to allow the groups and individuals to approach their duties objectively. DUTIES AND RESPONSIBILITIES need to be clarified to all, to aid the process of assessment and to avoid subjective decisions. These terms of reference and duties and responsibility need to be available in published form.

The USE OF THE NORMAL CURVE as a basis for deciding on the proportions of candidates who pass and fail raises questions, particularly in skills subjects. Should the skill subjects be scaled? Is scaling consistent with mastery learning? If the required criteria have been demonstrated adequately, should this result be scaled down? An equally relevant question, in assessing a skill when criteria have not been satisfactorily met, is, should that candidate be scaled up? Issues arise from this, that need policy statements. Employers consider the credibility of the certifying authority, when using certification as a yardstick, in their workplace. What are the consequences of scaling skills subjects?

The SYLLABUS is the corner stone of curriculum development and evaluation. It is therefore vital that the syllabus should follow the curriculum design for that subject. Evaluation is assessing the learning objectives and therefore the syllabus needs to be written with learning objectives. Examiners, candidates and teachers are direct users of the syllabus but a validating authority and a monitoring group are also active users and need to have a working knowledge of its goals.

Any TERMS, specific to the subject matter to be assessed, need to be defined, giving examples for clarity and to avoid ambiguity and inconsistency of interpretation. Terms used in the syllabus, are an essential element of the evaluation process and need to be defined so that the meaning is capable of being applied consistently by all user parties of the syllabus.

FLEXIBILITY is an issue that affects education and training providers and this in turn affects the subsequent curriculum

development and the evaluation process. The ability to change e.g. subject content in the syllabus in order to keep up with changing times, needs to be recognised with a procedure that supports this. Change is now an on going process and is an expectation, in education and training. Flexibility therefore needs to be built into curriculum development to accommodate change and this will inevitably affect the evaluation process. Flexibility can be managed, to ensure that consistency of content and of assessment, follows policy decisions.

TRAINING for all affected groups from the preparation of the syllabus to validation, to monitoring, to examining and marking groups, needs to be an immediate response to any changes. Training is the key to competency for curriculum development and evaluation. Training needs to include a professional direction in curriculum development and evaluation but also needs to include the specific duties and responsibilities, the limitations or boundaries in decision-making, within the terms of reference of their roles. Guidelines need to be produced as a reference manual. Terms of reference need to be based in knowledge and understanding of the evaluation process in general and also for each subject.

COMMUNICATION is necessary to all personnel involved in formal education and training but particularly in the evaluation process.

Policy statements, terms of reference, duties and responsibilities and guidelines need to be presented in one publication. This information needs to be used in training sessions. Any changes in the learning/evaluation process, need to be communicated to all involved in it. There will be differences in the procedures for internal assessment and for national assessment and these differences need to be stated.

A publication by the controlling authority needs to state the authorities objectives for the evaluation process and the boundaries for decision making within each of the groups. This sets a basis for consistency and avoids the possibility of using personal perceptions, enthusiasms or interpretations in the ultimate decisions of the group.

FREEDOM OF INFORMATION is now a reality and the implications of this Act for assessment, both internally and nationally, are wide reaching. The rights of candidates to assessment information, places considerable demands on certifying authorities but also places even greater demands on teaching staff where internal assessment is practiced. Policies need to be developed for a procedure to be followed by candidates, in seeking assessment information. How much information should be given? How much time should one candidate be given in providing information? What information should be given? How much detail should be provided? i.e. should a candidate be able to expect to be given the reason for the mark s/he received, for each question?

The management of the process of the evaluation of the learning objectives that are set down in the syllabus, is an integral part of competence. Professional management ensures that decisions by all groups in the process, are based on objective, professional principles and procedures.

B. Comments:

Taking the approach that the success of the evaluation process in competency-based learning is determined by the management of the system, Ms. Mary Boyle's presentation raised questions about the definition of terms, what criterion-referenced testing really meant and what the curriculum might reasonably be expected to contain. There was a difference of opinion here between those who thought that the curriculum should contain "everything that happens" (cf., compulsory schooling) and those who thought it was nothing more or less than a set of specific "planned activities" (cf. job-related employment). Participants connected with the Access schemes were particularly concerned about providing a competency-based programme but without the precise measurement of each of the core competencies or skills so characteristic of CBE. Once again the issue of who owns the assessment came up with the educators arguing that the assessment information "belongs to the student" and Ms. Boyle responding that education, industry and providers all had different perspectives on the matter. Some participants from industry depicted the difference as "industry wants training" and the "providers want education". Each side in this debate had its supporters and while they differed in whether industry had too narrow a view of training they all appeared to agree that industry and the providers had to get together and work the differences out. However, as someone put it, this would be no easy task as some industries were not yet working together (ie. Agriculture and Horticulture).

Presentation 5: An Application of Competency-based Training (Victor Ramsey Johnson - Premier OTD Consultants)

A. Presentation:

COMPETENCY-BASED MODULAR TRAINING^a

This presentation on the subject of competency-based modular training (CBMT) within a major New Zealand company included:

- . A definition.
- . The characteristics.
- . Advantages of the CBMT method.
- . Six major programming structuring events.
- . Examples of CBMT development within a major company.

Definition

^a. In recent times there have been a number of management consultants who have offered their clients largely imported CBE training programmes. Mr. Johnson of OTC Consultants asked for an opportunity at the Towards Competency seminar to demonstrate the approach his firm took in adapting these programmes for New Zealand conditions. Approval was granted by the seminar Working Party because they wanted to give as broad a range of current CBE practices to participants as possible, and an example from the private sector seemed appropriate in this context. (Editor)

Competency-based modular training (CBMT) is a method of programmed instruction that ensures important training outcomes will be achieved by each qualified learner. CBMT is based on criterion-referenced instruction with written modules of unitised instruction that have measurable performance objectives. A course of study is controlled and practiced by learners until they are competent in performing a job or task. Coaching and evaluation on-the-job with subject matter experts is an integral part of the programme.

Characteristics

- . Training phases are mapped.
- . Instructional units are in logical sequence.
- . Training objectives describe measurable outcomes.
- . Learners actively control the learning.
- . Learning is self-checked.
- . Minimal numbers of instructors are required.
- . Reinforcement occurs through one-to-one coaching.
- . Practice occurs on the job.

Advantages

- . Motivation to learn is enhanced.
- . Learning is in the individuals hands.
- . Learners work at their own pace.
- . Equal opportunity for all to succeed.
- . Learners competence is guaranteed.
- . Learners producing on-the-job more quickly.
- . Results of training are measurable.
- . Training is used only where it is needed.
- . Training can start when it is needed.
- . Management of training is simplified.
- . Training costs are reduced in the long term.

Six Major Programme Structuring Events

There are six major events in structuring a CBMT programme. The six events are:

1. System analysis.
2. Task analysis.
3. Programme evaluation method.
4. Training programme design and development.
5. Programme implementation.
6. Programme evaluation and feedback.

Structuring and implementing a successful CBMT programme requires a team of trained and experienced specialists.

Examples of CBMT Development in a Major Company

A specific example of a CBMT module developed within a major company was shown using mobile hydraulic cranes. The module includes units of instruction for:

- . Introduction to mobile hydraulic cranes.
- . Preparing a mobile hydraulic crane for lifting.
- . Operating a mobile hydraulic crane.

The units were written, illustrated and published in-house on a clients location using computer desk-top publishing methods. The estimated number of units for the client is 240, averaging 100 pages each.

B. Comments:

Mr. Johnson started off by saying that the computer-based training method he advocated had six critical elements - needs analysis, task analysis, evaluation criteria, programme design and development, implementation and feedback, which allowed regular self-check quizzes every 15 pages or so. Once again, as noted in the comments on other presentations, a small core of participants from the Department of Education queried the presenter about who owned the evaluation. In reply Mr. Johnson said that as the training was owned at the top and was driven by the values of those at the top therefore it seemed reasonable to expect that they also owned the assessment. One participant asked the question: "Does the employee have the right to information on his or her on-going progress?" Mr. Johnson responded that the employee had his or her own record book and therefore would be well aware of his or her progress. Another participant asked: "How do you know if you've done what the Chief Executive wanted?" In his reply Mr. Johnson indicated it was expected that a new employee would ask questions about the firm, find out what was expected of him, then change to fit in with the organization's climate, etc. He also acknowledged that there was often a conflict between what the manager wanted taught and what the workers wanted to learn, although in the end it was the learners who produced what was to be taught. In conclusion, Mr. Johnson drew attention to the fact that computer-based learning systems assumed that people were competent in literacy and oral functions before learning took place and, given this prerequisite, it was possible to carry everyone through whereas the present examination system had the disagreeable habit of "screwing people out".

Presentation 6: Technology and the Vocational and Academic Curriculum: Methods for Integration and Evaluation (G. Khan-Education Department, University of Canterbury)

A. Presentation:

INTEGRATED TRANSEDUCATION PROGRAMME

This workshop is based on the practical experience gained from the development, implementation and evaluation of a three year pilot curriculum project. Known as the Integrated Transeducation Programme (ITP), it was fully funded by the Department of Education and is currently in place in three Christchurch secondary schools.

For the students on the ITP, it aimed to replace the present subject-based curriculum, with a fully integrated internally assessed learning programme at the Form-5 level. Issues ranging from the integration of 'practical' and 'academic' work and the appreciation of the 'new technology revolution' to the development of Profile-based assessment and the triangulation methods employed

in the overall evaluation, will be discussed.⁹

B. Comments:

Mr. Khan's session on a pre-vocational competency-based programme for fifth form secondary school children drew a wide range of explanatory questions on how many students were involved, whether they worked together, how much time was spent on what to do and how to do it, whether it was optional or compulsory and how dropouts were dealt with. Again the concern from the general educators was the breadth of the curriculum and the fear that "people want schools to be training places." The issue for some participants was to keep the schools as places where holistic and broad-based education could be provided without the threat of contamination from vocational training. Mr. Khan, while arguing that at the ages of 16-17 years students can expect some form of specific vocational training, appeared to satisfy most questioners with his explanation that the programme was pre-vocational, competency-based core skill training where the students had a lot of say in where they were going. In addition, he explained that the students not only learnt off each other but that they undertook their own self-assessment. Mr. Khan also pointed out that the programme recognised gender differences, allowed for innovative ways of tapping community resources and was cost effective. He admitted there were some negative aspects to the programme such as the amount of organisation required, getting others to accept it as educationally sound and finding enough resources to meet programme needs. In the end he believed it was worth it for the students gained in competence and confidence.

Presentation 7: Modularisation: Implications and Examples
Competency-based Learning Programme - Carrington Polytechnic;
Needs-based Learning on Campus (Lesley Edgley and Irene Lynch-
Department of Education)

A. Presentation:

TOWARDS COMPETENCY: DEVELOPMENTS IN THE EDUCATION SECTOR

1. There is a strong move towards MODULARIZATION and COMPETENCY-based ASSESSMENT or CRITERION-based ASSESSMENT. This means a move away from NORM-REFERENCED ASSESSMENT which compares students against each other. Competency-based assessment means competencies are developed and standards or criteria are pre-set. Content is defined by specific objectives and assessment matches those objectives.

2. Polytechnics are at varying stages in the process of change, many already being involved in mastery learning and self paced learning.

⁹. Mr. Khan was asked for more detail on his programme but at the time of publishing this had not come to hand (Editor).

3. Examples of the new moves are:

- the national curriculum guidelines for Access: Access core competencies which are now being incorporated into modular descriptors;
- both community providers and the education sector use these core competencies: Carrington Polytechnic has developed a CRI course in English as a Second Language (ESL) -
 - . The title is 'Getting a Driver's Licence'.
 - . It is modular.
 - . It uses the CRI method of instruction.
 - . It uses competency-based assessment.

WORD PROCESSING PILOTS USING CRI

The Department of Education has established two word processing pilots using Criterion Referenced Instruction at Manukau and Carrington Polytechnics.

These pilots have been developed using two different types of word processing packages. The material will be trialled during late 1988/early 1989 with several different groups of students with different previous learning experiences.

The material developed under these pilots will be modified according to the students/tutors recommendations and will then be distributed to other polytechnics. Guidelines for implementation will be developed prior to general distribution.

MODULARISATION

A pilot programme is being developed between the Department of Education and a polytechnic to enable a move to modularisation in 1989.

This modularisation concept will be developed on a modified version of the Scottish 16+ exercise.

Current trends in education combined with the need for more flexibility in the polytechnic system indicate the need for programmes to be available in a modular form, and competency-based. As well as testing out the concepts of a modularised vocational qualifications structure, which might be implemented nationally, a modularised approach will enable existing polytechnic students to select core and optional modules of their choice and cater more appropriately for potential students such as:

- a) students who come to a polytechnic under a Link programme (they could cover a module of a mainstream programme which could be credited towards the continuation of that programme at some time in the future);
- b) women who cannot attend a polytechnic full-time because of family or other commitments but who could acquire a qualification over a period of time (these women may be seeking qualifications to enable them to enter a second

career);

c) current members of the work force who may be locked in on employment which does not provide promotional opportunities (these potential students may not be able for financial reasons to join long-term polytechnic programmes but would be able to acquire retraining on a modular basis over a period of time).

Presentation 8: The DACUM Process and its Application in Developing Competency-based Training for the Apprenticable Trades in the Motor Industry (Nano Morris - VTC and Steven Wickens-Motor Industry Training Board)

A. Presentation:

INTRODUCING COMPETENCY BASED APPRENTICESHIP COMPLETION
(The Experience of the Motor Industry in New Zealand)

HISTORY

An apprentice in the Motor Industry served 8,000 or 9,000 hours (depending upon School Certificate performance) to become a tradesperson. Attendance at Block Courses and Evening Classes (or correspondence) was compulsory. Sitting NZ Trades Certification Board/NZ Motor Industry Training Board examinations was not compulsory. The only requirement, approaching demonstration of competence, was a three hour practical examination, in artificial surroundings, using test jobs which could be fitted into half hour time slots, as a prerequisite for the issue of a Trades Certificate once the written examination was passed.

THE OPPORTUNITY

The 1985-88 Apprenticeship Reform process gave the opportunity to look at apprenticeship in new ways. Clearly it was nonsense to suggest that all apprentices were tradespeople after four or four and a half years in the workshop. Many who receive appropriate training are competent much earlier, while some, however intensively trained, never become competent. (Some of these have, no doubt, worked on your car).

THE PROBLEMS

1. The contractual nature of the relationship between employer and apprentice

Time served apprenticeships have a clear end point. Criteria can also be clearly laid down to establish the end point of a contract where competency can be demonstrated. However, if the industry had opted for completion based solely on demonstration of competence, then the apprentice who was unable to give such a demonstration would have a problem given the current legislative framework. The apprentice could effectively be tied to the employer for life! The motor industry, therefore, decided that contracts should continue to be drawn up for periods of time because "even a prisoner knows how long he's going to be in jail!"; but with early competency based completion being possible

and desirable.

2. Convincing Employers

Employers agree that apprentices are different, that some are competent sooner than other and that some never become competent. 75% of employers claim that they receive a full financial return on the overhead costs of employing apprentices in less than two years. However, many employers were reluctant to move away from the concept of "time served".

Two reasons are given. One is the old chestnut that there is no substitute for experience. Yet in our industry experience is only as good as "when was the last time one of those came into the workshop with that problem?" The second is that employers see the later stages of apprenticeship as giving them a return on their investment in training while the apprentice is still on low wages and cannot change his/her employment. The key to overcoming this resistance was utilising respected and influential industry people on the Steering Committee for the reform exercise.

3. Convincing Polytechnic Tutors

The move to competency based apprenticeship completion implies that there must be a demonstration of competence. This needs to occur on the job, and be independently assessed by Tutors as well. There is no place for an examination system which prescribes that a certain percentage of candidates must fail.

Tutors who are then asked to assess the skills of students both in theory and in practice, according to a set of criteria established by industry, see as an imposition the additional workload implied, without additional resources, and without a reduction in student numbers of contact hours.

THE OUTCOME

The June 1988 Motor Trades Apprenticeship Order prescribes two ways in which the apprenticeship contract might be completed:

1. By serving the 8,000 or 9,000 hours specified in the contract.
2. By completing the requirements for the Trade Certificate Practical Assessment and by passing the written examination and by demonstration of competence in all the skills described in the training manual as witnessed by their signing off in the apprentice's training record book. For each task in the workshop the Training Manual describes:

- the stage by which the training should be complete,
- the standard to which the job needs to be done,
- the tools and materials needed to do the job,
- the safety requirements which need to be observed,
- the steps in carrying out the job in a logical sequence, and
- the knowledge required of a person to do the job skillfully.

The Training Record Book, for the same task, just records the name of the task. A signature alongside the task title implies that the job has been carried out to the standard and detail recorded in the manual.

Some employers consider the use of the Training Manual and Record Book as unnecessary additional paperwork which adds to the burden of employing an apprentice. Most, however, are pleased to have a systematic approach to their training, and many have purchased Training Record Books for older apprentices who are not under the new programme.

THE FUTURE

On-job: Apprenticeship Committees and NZMITB personnel are following up the use of the manuals and record books with employers and apprentices. There is a commitment to review the training on a continuing basis, including the contents of the manuals.

Polytechnic: Ongoing meetings of tutors are being held to ensure that the assessment introduced are realistic and appropriate. There is a commitment to and ongoing review of the relevance of the training and the assessments used.

Above all there is a commitment to monitor the ongoing effectiveness of the training programme, and to introduce such refinements as may be required as soon as possible.

Nothing is immutable!

FIRST PLENARY: ISSUES WORKSHOPS/DISCUSSION GROUPS

The principal questions which guided the moderators of the Issues Workshops/Discussion groups were: What needs to be done? What needs to be known? Summaries of these sessions, as outlined below, were compiled from the official recorders notes as well as from the abstracts of main points reported back to all seminar participants during the First Plenary session.

Issues Reported-back by Groups

1. DACUM - "What is it?" and "How is it used?" were the two key questions facing this group of discussants. Specific matters that arose during the session were:

a) The mechanics of DACUM: "What were these?" was a common question because it was clear that the VTC were using the concept rather differently from some other curriculum developers. Essentially, as explained by R. Adams¹⁰, DACUM was not only a system for analysing an occupation into specific and interrelated skills, but a procedure for implementing a new adult learner-centred, competency-based curriculum in the field;

b) it was agreed that DACUM had application to community-based education/language, and courses/Access;

c) it was interesting to note that DACUM has the potential to "empower" workers by giving them a greater say in the development of new curricula. It appears a more democratic method than many other methods of developing and evaluating curricula;

d) a well-known advantage derived from using DACUM was the assistance it gives to industry to undertake its own training development work;

e) because of the need for trained facilitators to conduct DACUM-type sessions there was a plea from one quarter for the retention of the expertise of the VTC's TNA unit, irrespective of what eventually happened to VTC;

f) using DACUM in the New Zealand context at this time further hinges upon how the method is conceived by the user. If it is conceived as ending with the DACUM skills chart then there was much more to be done on how to operationalize the chart and to ascertain what role the developers should have in this process, which is usually but not always carried out in the training schools. Training schools have need of a high degree of expertise in curriculum development and evaluation if the chart is to be taken further. However, on the other hand, if the chart is seen as only the beginning of what most people

¹⁰. R. Adams, op cit.

know as DACUM then the planners have a further role in developing a curriculum which includes teaching programmes, teaching resources, staffing information and evaluation strategies. Whatever view one had of what DACUM really meant, participants constantly sought answers to questions on establishing assessment criteria and developing criterion-referenced tests.

2. Training Workshops - It was decided by participants at this workshop that the most important elements in producing teaching materials were: writing objectives, planning the instruction, and devising assessment strategies. In particular it was noted:

a) when it came to writing instructional objectives it was agreed that the objectives of a course are principally for students, not for tutors. The students should be able to see in the objectives the performance that is required of them after instruction has taken place. Further they should also see in the objectives under what conditions they are to achieve a behaviour change and to what standard this new behaviour must be demonstrated;

b) the workshop identified that there was confusion between what is generally known as subject matter (ie. content) and objectives (ie what to do with the content to achieve a behaviour change);

c) there was some discussion on how to find common language to communicate objectives (eg. cross-culturally). Due to a lack of time this matter was left for another occasion.

3. Evaluation and Assessment - This topic generated a lot of discussion throughout the seminar. Interest centred upon all forms of competency-based assessment, including client-centred evaluation. This mode was favoured and actively promoted at the seminar by those from the formal education sector. In sum, however, there was general agreement about:

a) the need for a national assessment body to coordinate and monitor accreditation within and between different occupational fields;

b) most people at the seminar, and certainly those in this workshop, recognized that extra time was required for assessing CBE. With this extra time went further training of tutors who, in many cases, had to adopt an informal teaching style - something they often found difficult to do;

c) clearly stated performance objectives were recognised as essential in setting meaningful and realisable standards of performance;

d) there was some confusion over where it was best to conduct assessment (ie. on/off the job). Most agreed that testing in functional context made sense in a competency-based programme, but it was widely acknowledged that this approach required more time, materials and skill if it was to be done satisfactorily. This realisation left some participants convinced that quick but limiting paper and pencil test might be used simply because they were easy to apply;

e) there was a lot of discussion about pass/fail mastery measures versus differentiated grading in criterion-referenced measurement. Most participants found it hard to accept that some CBE programmes used both norm-referenced and criterion-referenced measures when evaluating student performance. People appeared to take polar positions on this topic - either supporting the use of a single pass/fail grade or indicating a preference for a ranking grade. Most of these participants could see no difference between an A, B, or C grade awarded on the basis of others' performances and the same letter grades awarded on the basis of external criteria. The whole question of assessment appears a fruitful area for further discussion and might be a suitable topic for a further workshop;

f) for those who were concerned about the assessment of the affective domain the preferred method was by observing behaviour. This subjective, teacher-centred method has just as many of the problems critics direct at the more objective ways of measuring attitudes, interest, personality etc. More innovative methods of affective assessment, outlined during the seminar appeared (to some) to be beyond the comprehension and understanding of the majority of teachers and tutors in vocational education;

g) questions were asked about Industry's role in CBE. No one seemed very clear about the role that industry should take in setting performance standards. There was the general fear that if they had too much say they would take a narrow view of vocational education and focus on industry-specific vocational training. The tendency towards CBE programmes with their specific, isolated, and easily measured behavioural objectives was seen by many educators in the formal education system as a way of furthering the move to a broad-based vocational training system in this country, something that they considered would be detrimental to the programmes already established in the polytechnics;

h) the issue of how to recognise excellence at the same time as competency was a matter that resulted in some discussion. As mentioned above, there was confusion over the way to deal with the two basic forms of measurement and some differences of opinion over awarding measures of excellence whether or not the students wanted them. Some participants could not see "passed" a pass/fail grade for CBE programmes. Others, with more experience of the realities of teaching in the vocational field argued for some indication of mastery above the minimum pass or criterion level. There were those too, faced as they were with a highly competitive group of students or a training system that rewarded excellence (eg. top student(s)), who wanted to rank performance above the minimum pass standard in such a way that those who achieved the higher grades were able to strive for a higher overall grade or measure of performance. The philosophical outlook of some participants appeared to determine their stand on assessment issues and the intensity of this debate was an expression of the rigidity of their perceptions of the contentious matters;

i) people skeptical of CBE drew attention to the difficulty of measuring entrepreneurial behaviour. Although this advanced

skill poses real measurement problems it is part of only a small portion of behaviour that challenges the skill of the CBE curriculum developers to find appropriate method(s) of assessment. Even so a vocal minority of participants saw competency-based education and training as faulted because it could not provide all the answers to their doubts about the measurement and the assessment of higher level cognitive/affective/psychomotor skills. Representatives from professional groups at this seminar who did measure these skills, and who believed they did so successfully, were subjected to a high degree of skeptical questioning by a small core of educators. It was pointed out that the measurement of advanced skills is an area that few people have expertise in so it was not surprising that there was such a high degree of doubt manifested by some participants about the average levels of proficiency of tutors.

4. Competency and Access - A number of participants in this workshop had an interest in the planning and/or implementation of the Access programmes. Much of their time was taken up sharing and discussing issues associated with the development and suitability of Access core competencies. Answers to questions directed mainly at the Department of Education officers indicated that:

- a) the Department's recently developed list of "core competencies" had not been widely disseminated due to gaps in the official lines of communication;
- b) there were development problems with these core competencies and this could explain why they were not widely available;
- c) work that had been done to date indicated that work-based learning was cost-effective, and held out promise as the way to go in the future;
- d) Maori cultural/minority perspectives had been integrated into the core competencies.

5. Multi-method Approaches to Curriculum Design and Evaluation- This workshop, like some of the others in this sector of the seminar, started off with a sharing of information. This information covered a broad range of topics associated with curriculum design and evaluation such as philosophical orientation, profiles (person and job), training and assessment criteria and so on. The group identified a number of issues that needed attention such as:

- a) there was a need to clearly define the concepts being used. People appeared to differ in their use of terms such as curriculum, syllabus, prescription and even DACUM. It was noted that VTC used DACUM to describe what they were doing (ie. principally training needs analysis) while others used DACUM to describe the whole curriculum development and evaluation process;
- b) there were viable alternatives to DACUM (see Mr. Ian Livingstone's keynote address) such as
 - . Delphi
 - . Observation

. Critical Incident, all of which showed promise in a vocational setting;

c) DACUM (as defined in its narrow sense) is now widely perceived as a starting point. It does not

- . adequately cover student learning needs
- . take a holistic approach to curriculum development and evaluation,
- . give values/attitudes and other affective learning outcomes enough prominence, etc.,¹¹;

d) participants were unanimous in agreeing that there should be more research into vocationally-based curriculum development and evaluation. When attention was directed at who should undertake this research, two organisations were singled out as having, or soon will have, a national responsibility in this respect:

. NZCER - the Council, already engaged in researching curriculum methods, was seen as the most likely avenue for further research;

. Validating Authority - the NVQB, mentioned in the Minister's speech, was also seen as a likely avenue for

¹¹. Editorial Comment: This criticism of DACUM, although understandable in that some New Zealand curriculum developers have used the term DACUM in a narrow job analysis sense, does not apply to the DACUM method that was developed by R.F.Adams and described in his publication "DACUM approach to curriculum and evaluation in occupational training at Nova Scotia NewStart Inc." Yarmouth: Nova Scotia. The very title suggests that the Adam's process is aimed at meeting students needs, is holistic in its approach and deals with the more sensitive issues of the affective domain. Reference to Adam's publication will confirm this. It is unfortunate that some developers have isolated the DACUM chart development phase of Adam's model, called it DACUM and promoted this aspect apart from the rest of the process. To be successful the DACUM chart must be integrated into a total curriculum plan. Because of this requirement it is hard to divorce the chart phase from the integration phase for the developers of the chart have a crucial role to play in the integration phase as well. To be successful here the developers, apart from their obvious ability as researchers, must also have a good general training and experience in curriculum development (including knowledge of programme and course planning) as well as an intimate knowledge of the processes of teacher/tutor training and student learning. Finally, the developers must actively seek the opportunity to be involved in implementing the new or revised curriculum in the field as early as the planning stage. If this is not done the whole process becomes suspect because the planners have abrogated their responsibilities to others who were not in on the ground floor when the basic plan (ie. the DACUM Chart) was developed- therefore the unprepared implementor's commitment to, and understanding of, the plan will always be based upon conjecture and their own views of what might be best. In other words, the whole process of curriculum development should and must be overseen by experienced and qualified curriculum planners from beginning to end.

further research. Both AAVA and TCB have undertaken, or commissioned, research in the past, but with their absorption into the new validating authority (NEQA) responsibility for initiating future research will now be vested in the latter;

e). "Who does the training belong to?" was a question that came up constantly during the seminar. In this context the workshop group considered that the training should belong to society as a whole and not just to the industry concerned. Once again there appeared to be a strong rejection of the "performance oriented" training approach of industry in favour of the broader occupational "core skills" approach of the education sector at large.

6. Use of Competency Training - education for the management/professions:

a) Competency-based Education (CBE), it was agreed, should not be thought of as applying solely to trade or technician training. It could (and had) been successfully used in management and professional training programmes;

b) CBE is appropriate at all levels of training and education and this should be recognized by all those associated with training and education at the vocational level. Adults responded enthusiastically to CBE courses and programmes because they knew where they were going, what they were doing, and how and when they were going to be assessed. This gave the adult learner confidence and reduced anxiety levels, something they were more prone to the older they were;

c) special mention was made of the necessary and practical use of the Systematic Approach in designing curricula. But, at the same time, it was acknowledged that the approach must include systematic assessment of higher level complex "people skills". Measurement of these higher level skills could be done in a mechanistic piece-meal albeit objective way, or in a holistic but subjective fashion. Participants preferred the latter but acknowledged the difficulties in deriving valid and reliable measures that could fairly and accurately describe the people behaviours being evaluated;

d) there was a widely held view that what was needed to improve the state of vocational education and training, at this time in the country's history, was a synthesis of the output of training organisations with the requirements and needs of the individual workers;

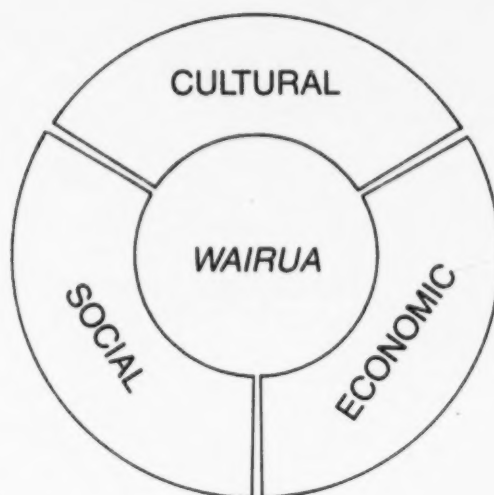
e) in respect of the previous point, mention was made of the need to consider the local context in the design of national curricula. This often poses a design problem but tends to make the ensuing courses more appropriate and relevant;

f) once again it was pointed out that the way the DACUM process had been widely used in trade training circles in New Zealand had made it of limited value in the total CBE process.

7. Maori Issues - beliefs, values and partnership. The Maori spokesperson called for training and education that embraced *taha wairua* (attitudes and beliefs), *taha hinengaro* (knowledge) and *taha tinana* (skills). The position was best expressed in a form which places due emphasis upon:

- a) Maori Unity, Competency, Affective Dimension, Decision;
- b) Partnership, Protection, Participation - commitment, and relevance.

These aspects (See the diagram below) represent a more integrated approach to work and non-work than the Western competency-based training models sometimes seem to imply.



- | | |
|-------------------|-----------|
| 1. TAHA WAIKUA | ATTITUDE |
| 2. TAHA HINENGARO | KNOWLEDGE |
| 3. TAHA TINANA | SKILLS |

All-in-all, the Maori participants called for partnership, protection and participation for their people in any future vocational training initiatives.

MAIN POINTS/THEMES ARISING FROM THE SPEECHES, PRESENTATIONS AND ISSUES WORKSHOPS

In summary, and after collating information from all the formal and informal work sessions during the seminar, it was clear to those attending that there were a number of contradictory dichotomous themes that ran through nearly every workshop group. These themes were:

* **Ownership of assessment:** "Who owns the assessment information of the trainee?" is a debatable question given that although the employer was the one who immediately benefitted from the assessment process in CBE, the information that the employer derived from tests is a necessary component of trainee motivation. It is important, most participants realised, to feedback how well, or otherwise, a trainee is doing if they are going to learn from their mistakes and improve their ultimate performance. Yet the question still arose in a number of sessions - "Who ultimately owns the results of the assessment?" Some claimed that the ownership should remain in the hands of the trainee who could decide whether they were going to share the results of the training with their employer. This gave the individual at least a modicum of control over their future in the firm rather than being a helpless pawn in the hands of foremen, supervisors and owners who were judged by some participants to exploit the workers at every opportunity. Other participants, with some idea of what it was like to work in the world outside schools, could not see how an employer could possibly hand over the ownership of assessment to their employees given that their firm had invested money in training (either directly or indirectly through release time in many cases) and given also that the shareholders wanted evidence that the firms investment in the future was at least cost-effective. Rather than polarise around the two extreme positions representing participants views it would be more useful to recognise that there is a rational and sensible half-way house whereby both trainees and employers share the training information to their mutual benefit. This approach, of course, recognises that personal and confidential information would still be able to kept from the other party as long as it was not harmful to the firm or the trainee to do so.

* **Technical currency of tutors:** Participants with a long history of contact with the polytechnic system drew attention to the widespread, rigid, formalised and impersonal teaching styles of its tutors. It is widely recognised that many tutors have had no formal teacher training and, although the tutor education centres have done a creditable job in raising tutoring standards around the country, it can still be said that tutors generally lack the teaching skills to handle innovative teaching techniques such as CBE. That being so, the belief was that students and trainees may not be able to benefit from the many advantages of CBE until the tutors are better trained. While it was recognised that polytechnics have a staff training problem industry was not always in the position where it could wait around for someone (typically the Department of Education) to provide this shortfall and had

developed its own training systems independently of the formal education system. Using the latest in teaching technologies, and especially computer-based instruction, some large employers had broken away from the polytechnic system convinced that in doing their own thing they would be able to turn out a better and more useful product. Unfortunately, they have been too successful in their use of CBE and the divorce between an education system that purports to "care" about its charges and an employer who only wants to see the job is done, in the shortest possible time for the lowest possible cost, is all but final in these cases. Once again, it is not a matter of one being a substitute for the other, but a case of one partner not doing the job it was hired for and the other trying to go it alone. In the end both parties are shortchanging the learner who is more than cogs and wheels but then more too than a shroud of ephemeral intangibles. People want jobs and to do an ever increasing range of the jobs in New Zealand of the future people want the most appropriate training they can get. The ones who can give them this training must themselves not only have the skills to do the job better than the average student but teach the skills better than the average lay person. It is the tutor who has been found wanting and this state of affairs requires urgent attention and compensatory remediation if this country is to make-up its present short fall in technical skills.

* Conflict between using checklists and rating scales to measure competency: It is true to say that a number of participants were surprised and concerned to see how much use was made of rating scales by vocational training bodies employing a CBE approach. The concern of some participants revolved around whether, in the best of all possible worlds, it was conceivable that a tutor could leave off being a human being for long enough to grade somebody using fine levels of comparison which, they believed, only made the tutors' assessments more difficult. These participants appeared to have more confidence in the pass/fail, two-position choice of the typical checklist. In this case it was believed that it was easier to make the right decision because this kind of course/topic/task measurement was easy enough for all to see. In other words this approach took a lot of subjectivity out of the final decision leaving, supposedly, both the assessor and the assessed happy. Yet, as was pointed out by industry trainers, such a broad approach to assessment does not allow for the fine levels of discrimination that go on in the real world. Nor does it provide the students with the training that they will need to make these kinds of fine discriminations in the work place. As to subjectivity, it was asked, How can one truly expect to eliminate this from the very subjective process of learning/teaching? The secret is to control it through more objective approaches to assessing subjective activities. Rating scales were promoted as an excellent way to do this, especially if the learner has the opportunity to rate their own performance and discuss their rating with their peers and tutors. Furthermore, it was said that using rating scales train students not only in fine levels of discrimination but in determining measures of increasing excellence. They are an essential part of the learning/teaching process and far superior to a crude checklist, right/wrong, yes/no approach to education and training. Perhaps the feature about rating scales that scares people away from using them is that they require some skill on the part of the tutor in developing and applying them to a range of different student behaviours. The tutor must know intimately the different levels of performance

well, be able to distinguish when a trainee has reached the required level, and finally be able to convey this information in a supportive learner-centred way. It was clear at the seminar that a large body of participants from the formal education system were either unfamiliar with their use, and consequently suspicious of the scales, or because of their knowledge of the education service and the inability of tutors and teachers in general education courses to use such assessment measures, thought them "dicey" under the circumstances. What ever the position in the polytechnics and secondary schools of the nation, the use of rating scales is very much a feature of CBE and is here to stay. What the seminar demonstrated is the need for training courses to teach our tutors how and where to use a broad range of measurement techniques most appropriate for any vocational occasion.

* **Managing the transition to CBE:** The realists among the participants were quick to see the potential of CBE, not only in the factory training rooms and polytechnics, but in other areas of tertiary education and even in the compulsory school system itself. Nevertheless, these same people were the first to realise that one could not just introduce CBE into tertiary training without careful management and planning. Mention has already been made in the paragraphs above to the need for specialised tutor training. This theme draws attention to the need to follow up tutor training with the facilities and resources required to implement a CBE programme as part of an overall comprehensive management of learning plan. The most appropriate plan (emanating out of the dialogue at the seminar) would see, for example, widespread use of pilot studies followed by gradual implementation of the plan across the industry (After, however, careful feasibility studies and the production of not only suitable subject material and teaching aids but also the application of suitable tutoring personnel to the target trainees). Because this kind of innovation can be misapplied, like any other teaching strategy, its proponents said it should be carefully monitored and if found not to disadvantage the trainees in any way it should then be considered whether CBE should be introduced more widely. What ever was decided about the wide spread use of CBE, it was clear from what participants were saying, the whole implementation programme should be carefully planned, introduced and implemented. There was no obvious support by any participant at the seminar for "jumping on bandwagons" when it came to curriculum development.

* **Use of CBE for management/professions:** Some of the participants questioned how useful CBE would be in dealing with the more advanced management and professional skills that one encounters in the upper levels of the university. These people saw CBE catering for low level skill training, more akin to the mechanical activities of digging fence post holes or baking a cake. Recourse to the Dietitians post-graduate course did not help them to understand how far one could go in dealing with complex learning tasks through competency-based programmes. Nor did how these high-level professional courses dealt with a variety of assessment issues convince them that all avenues can be catered for. It appeared to the Working Party that a number of participants had made up their minds that CBE would not suit the professions. Yet, as Ms. Kelly of the Dietitians Board showed, the opposite side of the coin is that CBE suits the professions very well. By its very nature CBE gives clear directions about where the learner is going, how they are going to get there and

how they will be assessed and to what standard. Furthermore, the instruction is usually individualised and self-paced. This is an ideal way of learning for adults who are reluctant to keep asking questions and want to work/study at the speed that suits them best. The more advanced the course, the more ideal CBE becomes for the trainee.

* **Portability of training:** The Minister opened this subject up early in the seminar. Participants it was noticed took up his point about the portability of qualifications and added their own interpretations, especially in relation to CBE as it was portrayed by the presenters. Modularisation was mentioned both formally and informally during the two days always tinged with a concern about the validity of the training that underlay the modules. If the modules were to be portable, it was said, then the training should also be portable but this did not seem possible at the moment. Furthermore, the modules would have to go through some kind of validating procedure if they were to be acceptable outside the environment in which they were developed. How this would be done, and even whether this should be done given the industry-specific specialised nature of much of the learning that went on in factories and vocational training centres, was a moot point with some participants. Intrinsically, the concept of portability appealed to most of the participants for they could see the value of cross-fertilised training in the New Zealand context. What was not so easy for some to accept was that the CBE structured learning approach should be applied as a model for all of vocational education, even extending down into the upper secondary school. In fact some (especially those representing the formal school system) were dead set against such a move even in the interests of more portable qualifications. The whole issue of the portability of qualifications appeared to them to be an anti-humanistic move to degrade the sanctity of the holistic approach to teaching/learning and reduce it down to the level of unthinking mechanistic teaching/learning. Anything that furthered CBE, right or wrong, was seen as anti-educational in the extreme. Furthermore, some appeared to believe that CBE had a limiting bias inherent in its structure and organisation and for this reason should be restricted to certain clearly definable and controllable domains. Perhaps a more pertinent reason for rejecting the value of CBE was the "so called" behaviourist philosophy behind it. But, Is it really exclusively behaviourist? or Is it really humanism in another form? Participants at the seminar only just started to grapple with these issues before they had to leave.

* **Definitions of "curriculum", "syllabus", "prescription", and "assessment and evaluation":** People use these terms in different ways and it soon became obvious during the seminar that a common list of definitions was needed before an appreciation of CBE could be arrived at. Trying to summarise the different interpretations became a pointless exercise for the recorders and editor of this Proceedings as everyone had their own definitions and most were so off track it was embarrassing. Of more use is a restatement of the established definitions, which it is hoped, will aid in the demise of common misconceptions about what comprises a curriculum plan produced by whomever for whatever purpose. These are:

Curriculum - Saylor and Alexander (1974)¹² make the point that curriculum as a concept has been seen as subjects and subject matter, experiences, and objectives. In their view, and one that is widely held, the curriculum is conceived as a plan. In precise terms they say: "We define curriculum as a plan for providing sets of learning opportunities to achieve broad goals and related specific objectives for an identifiable population served by a single school center." It matters not one jot that these writers are writing about schools for what they have to say applies equally well for institutions such as polytechnics and industry training boards or for that matter individual employers. The value in this definition is that it recognises with equal importance the specific learning tasks required by the learners and the whole range of experiences extant in the school and community. The learners are not isolated by their studies but become one with the greater learning environment. Thus a plan is necessary so that curriculum developers can ensure that the complex interrelationships of knowledge, attitudinal and psychomotor take place in the most appropriate order and stage in the learners development. Nothing must be left to chance because there is usually little time available for training. A total plan covers everything from philosophy, goals and objectives to content, learning experiences, evaluation strategies and unexpected outcomes. A plan never forgets who is the centre of attention - the trainee or student - and ensures that they never move from centre stage.

Syllabus - Those participants from the education sector are familiar with syllabuses and often referred to them as a kind of curriculum plan. In the way that syllabi are used they are fast approaching the completeness of a curriculum plan but will never take the latter's place because they are by definition simply outlines or brief statements of the main points of a discourse. In the past syllabus was nothing more than a list of subject content but nowadays it is usually referred to as containing the contents of a curriculum. More precisely "A syllabus is a statement not only about the subject matter or content of teaching for a particular group but also about the objectives for that group stated in subject terms." (Taylor, 1971)¹³. This is where the confusion between a curriculum and a syllabus has arisen. Content in respect to syllabuses usually means a collection of subject matter, not the topics that come under the headings listed in the contents page of a curriculum plan.

Prescription: This concept is used in education to explain the conditions under which a candidate for an examination can be expected to sit and pass an examination. Therefore the word "prescription" is often used with the adjective examination preceding it. Even so the concept is often loosely used nowadays to describe, not only what will feature in the final examination (including how the examination will be conducted) but it may also

¹². See J. Galen Saylor and William M. Alexander (1974), Planning Curriculum for Schools, Holt, Rinehart and Winston, Inc.: New York.

¹³. See Philip Taylor (1971), "Purpose and Structure in the Curriculum" in The Curriculum ed. Richard Hooper, Oliver Boyd/Open University: Great Britain.

contain information on subject matter, resource materials and teaching hints. In this case the prescription is more like the expanded version of a "new style" syllabus. For the sake of clarity it is better to talk about a syllabus and an examination prescription rather than use one concept to cover both separate sections in describing the course and the course requirements leading to graduation.

Assessment and Evaluation: These two concepts often get confused once again because they can both mean the same thing or something different at the same time. Assessment has two meanings in measurement: 1. the simplest meaning concerns measurement and nothing else; 2. the complex meaning concerns measurement and the awarding of a qualitative grade or comment by the tutor (ie. involves evaluative judgements on the part of the latter). In this connection assessment is no different from evaluation. Evaluation on the other hand means both measurement and a value judgement by the tutor. If you are in the game of making such judgements then evaluation is the more explicit term to use. Unfortunately, the broader use of assessment is so widely practiced that it will be almost impossible to wipe out its second meaning in favour of evaluation (the more precise term).

* Assistance with the design/planning (writing achievable objectives) of local curricula for providers: It did not take participants long to agree that an essential characteristic of a successful curriculum were "achievable" objectives. While some claimed proficiency in this domain others joined a workshop to study the finer points of objective writing. Yet underlying this concern about the quality of the objectives in vocational curricula was the realisation that objectives, no matter how good they were, should be written for one institution and one set of trainees. This requirement, it was said, does not exclude the transference of sets of objectives from one institution to another for there will be many that are common. However, it does highlight the importance of writing objectives to suit local conditions and this means local providers. Well-meaning attempts by national institutions to take the hard work out of writing objectives by producing a set of national objectives, without consultation with local user groups, defeats the purpose of supposedly assisting local communities with this task. Excluding local groups from the objective-writing exercise, with the spin-off benefits derived from a two-way flow of information, ignores the likely prospect that many objectives can be advantageously adapted for local conditions. As pointed out by some of the discussion groups, however, writing objectives is a real skill. But a greater skill than that is adapting them to local conditions without significantly changing the core competencies enshrined in a national curriculum. Assistance with all aspects of curriculum development and evaluation was sought by a significant number of participants at the seminar. As to who should provide this assistance was not at all clear, but the matter was urgent enough to require immediate attention and is raised again in the final section.

* Monopoly of DACUM: "Is there a place for guidelines?": There was outspoken concern during the seminar about the hold the DACUM process had upon curriculum development in vocational training in this country. To some extent the Ian Livingstone paper should have alleviated some of that concern. But there was enough

remaining for some participants to ask whether DACUM should be reigned back and its use standardised by the issue of strict guidelines for its control. However, as others pointed out this would raise further problems as DACUM is used differently by different training and research organisations (See editorial note above). Nevertheless, most participants wanted guidelines to help them decide whether DACUM was the most appropriate curriculum development method for a particular vocation or course. In view of the research undertaken by NZCER into the use and applicability of DACUM, as originally applied in Canada, the Council has the experience, information and means to produce these specific guidelines, if requested to do so. The Livingstone paper is a good starting point, but it was the view of those concerned about the DACUM issue that NZCER be asked to sort out the controversy, as soon as possible.

SECOND PLENARY SESSION

The Plenary Session was thrown open by the seminar facilitator to all participants to express those views that they felt had not been dealt with in sufficient depth, or not dealt with at all. What follows are some of the recorded remarks which represent the range of opinions and attitudes of participants. Some of the more emotive comments were not recorded by the official recorders because they also became involved in the debate. Nevertheless, these closing remarks added to the recorded discussions tabulated previously gives a fair representation of what participants said at the time.

Closing remarks from various participants:

"NZCER and VTC are not in open conflict. One of the reasons for this seminar is to share information and discuss differences of opinion and approaches. Both NZCER and VTC have worked together for many years and you couldn't have a better working relationship than among those contributing to the organisation of this seminar. Where the two organisations differ, is in their interpretation of what DACUM means and how it should be applied in the field. This seminar is a golden opportunity to settle, or understand, these differences in an open, rational and friendly way to the ultimate benefit of all. Running the seminar together does not exclude NZCER and VTC from taking part in the discussions, or even being involved in some of the more controversial issues at times."

"This is the time for a synthesis, for a more holistic approach. For the first time policy-makers and educators have had the opportunity to listen to employers. I believe the curriculum belongs to the job and the person. We need to look at the job profile as well as the person. Competency-based training empowers people on the shop floor. I ask you to value it for that. Job needs and personal needs can be brought together in the teaching/learning. Transition education is about making a border crossing into the world of work. This is what ACCESS is about."

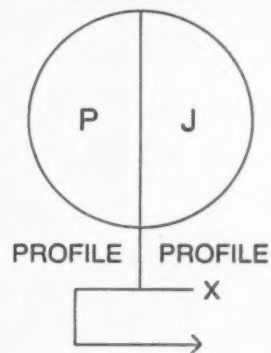
"I perceive differences between the field of education and those in the field of business. I direct these remarks to the educators. You are moving into the field of organisation behaviour and development. You need an understanding of it. Many factors come together to make up people's meaningfulness in the work place."

"I look for rebelliousness when looking to employ someone for an organisation. Future directions I see: 1) learner involvement is vital; 2) learner relevance; 3) accountability to the learner client (the Auckland cervical case highlights how members of a profession can neglect their clients). We need continuing dialogue with learners."

"Feed in the appropriate curriculum and you can have training for leisure."

The following model was put onto an overhead projector transparency to make a point:

NEEDS ANALYSIS



Code: P = person and J = job

"If we accept that model we're half-blind. We're headed for a total unemployment situation. 'Equip the individual to go into industry!!!' We need to train for the vocation of not being employed. We need to plan for non-vocational training."

"The JOB is shrinking. That heightens the need to make PERSON expand. It increases the need to concentrate on the person."

"There are different forms of intelligence. We need a wider understanding of these potentials. The potentials inherent in the individual."

"I am concerned about motivation. We often start with the basic assumption that we have willing clients."

"Why aren't our people motivated? Motivation isn't there unless direction is there. Where are we going? When we go through the education process we realize why we were down there in the first place. The problem may be the educators or the people in power. This seminar is directed at a particular crowd."

"Don't ignore knowledge. Knowledge gives power."

RETROSPECTIVE VIEWS OF THE SEMINAR

Because of the difficulties of piecing together the various records and impressions of the cultural, social and personal outcomes of the seminar, a selection of individual retrospective views has been solicited from representative participants. This is done in the belief that through their combined comments a much clearer picture of the actual seminar outcomes can be objectively portrayed to the reader.

Retrospective views were provided by the following:

A Presenter	- training provider	- Stephen Wickens
A Participant	- employer's representative	- Marilyn Davies
A Participant	- examination authority	- Helen Paterson
A Participant	- client	- Alistair McCallum
A Participant	- education provider	- Judith Cristensen
A Participant	- Maori education	- John Tapiata
An Organiser	- seminar facilitator	- Dean Nugent

Stephen Wickens

Perceptions - The seminar provided a valuable opportunity for participants to share their background knowledge on the development of the competency approach to training assessment. It provided a political platform for those who believed that they had been disadvantaged by the current educational system, and had value as a consciousness-raising exercise for many of those present.

Achievements - Publicity material for the seminar stated: "*The seminar will provide a forum to develop guidelines to ensure that New Zealand is responsive to the changing needs occurring as a result of the substantial reshaping of the New Zealand vocational education system.*" Clearly, to succeed in that central objective the "guidelines" would need to have clearly emerged following the seminar, have been published, and have been made available to those involved in curriculum development and assessment in educational and industrial organisations throughout the country.

However, the outcomes of the seminar were rather less tangible, and while the airing of a variety of philosophies was no doubt an enriching spiritual experience to the benefit of many of those present, the publication of guidelines to assist in the promotion of the recognition of competency-based achievement has yet to occur. Has "Towards Competency" made any difference?

Marilyn Davies

The central theme of the seminar revolved around competency-based vocational training in New Zealand. It became apparent in the

seminar that there is still a widespread lack of understanding, and consequently suspicion, of industry involvement in the education process. Yet, implicit in the phrase "vocational education and training" is the notion that the purpose of the system must relate substantially to the economic survival of the nation.

Vocational education is, by definition, job-oriented. It is concerned with the acquisition of industry-related skills and knowledge and their application in the workplace. Because career interests will almost always be the main reason why people seek the assistance of the vocational education system, the system must be oriented to the needs of the industry. The system will fail if it does not provide the individual with marketable skills.

This demands a pragmatic, systematic and product-oriented approach to curriculum development. Educators need to be reminded that vocational curricula should be industry-driven but that the industry/education partners must work together and be seen to work together. Industry's role is to determine and define its own needs and standards by whatever means are appropriate for that industry. The provider's role is to determine the educational means to meet these needs.

The success of the partnership should be judged by the degree of competence achieved by individuals in the skills required. The application of skills and knowledge acquired is the test of the vocational education system. This message was stated by a number of industry representatives during the course of the seminar but lost sight of in the welter of other more humanistic concerns towards the end of the seminar. This leads one to ask: "Is industry fighting a losing battle?"

Helen Patterson

The sponsors of this seminar should be commended for arranging a forum that attracted and allowed a wide range of participants to share and exchange their experiences with, and perceptions of, competency-based education. Several points should be addressed as a direct result of some issues that were raised during the proceedings:

1. the seminar programme embraced the development and the operation of the DACUM curriculum development process and we enjoyed the presentations illustrating a range of current competency-based programmes. However, no analysis or comparison was undertaken in relation to the evaluation of the DACUM system or its relevance and suitability in the present development of trade education programmes;
2. another issue that was discussed and yet requires further consideration concerns the planning of policy for curriculum reform. This is because curriculum policy can shape the direction of programme development in light of the economic, social and educational restraints apparent in our communities;
3. there still remains an urgent need in educational circles for agreement over definitions related to the philosophy and processes

of competency-based education together with the consistent use of standard terminology so that no occasion will arise where the misapplication of terminology and consequential erroneous interpretations will lead to a misunderstanding of intent;

4. staff training stands alone as a major issue for consideration as under NEQA we move towards institutionally-based curricular development. It is clear that tutors need comprehensive assistance through education training programmes which will prepare them to develop, assess and evaluate theirs and others teaching programmes.

In retrospect, this seminar achieved many of its aims for it became apparent that educators working within the new system need to consult, prepare and share resources to achieve the outcomes that the Government has stated are to become our responsibilities in the near future.

Alistair McCallum

The lingering impression left by the seminar is one of diverse agendas at work accompanied by an enthusiastic desire to foresee the future direction of curriculum and evaluation design. Time and the complexity of the issues prevented a full exchange of ideas and opinions.

Judith Christensen

The seminar offered an opportunity for participants to consider curriculum development in vocational education and to work towards a set of guidelines to assist providers of vocational programmes with the development of competency-based programmes. At the end of the day I felt ambivalent about the outcome. Had the goals been achieved? Had the day been worthwhile?

Twenty-four years in vocational education has made me wary of the claims that are made on behalf of a mechanistic task analysis approach to training. But then, I am a questioning person! There are many who believe that this approach is something new and that it has all the answers. It is not new. Indeed, nursing seems to rediscover it every decade or so, alternating with more person-centred models. Undoubtedly a society's prevailing educational philosophy is influenced by the changing priority order that community assigns to issues such as efficiency, individual responsibility, a skilled work force, staff retention, productivity, job market, and the community's care for its people. Indications of the current priority listing came through the morning presentations.

The enthusiasm of many of those present for DACUM and similar task-centred approaches was admirable. These trainers were giving priority to efficiency in training large numbers of people to perform in jobs which are perceived as comprising a number of discrete tasks. Throughout the seminar I kept asking myself the question - What message does this approach give the learner, about himself, about the job, about his value as a person, about the

employer-worker partnership?

By the final session many questions were still waiting to be explored. The report-back from the small groups raised more issues which warranted discussion within that forum. Instead, the day drew to a close with the Maori people present taking the opportunity to share their concerns about their people. Although challenged by this presentation, I missed the opportunity to review the issues and the goals of the seminar. There was a sense of incompleteness at the conclusion of a seminar which promised much.

John Tapiata

The seminar did not suit our needs¹⁴.

Dene Nugent

"Economic progress is the replacement of physical exertion with brain power." Lester C. Thurow

I liked John Tapiata's three P's - Partnership, Protection, and Participation. They form part, it seems to me, of the fourth P-Process. And if you get the Process right you'll hopefully get the 'right' Product. As a facilitator of the seminar it was my job to guard and guide the process.

The kinds of process questions I always find myself asking go something like - "Where are we?", "How can we decide?", "Where do we go from here?" (and in partnership, with protection?) "Who are we?" (Who's participating here?).

Process, I believe, is not simply instrumental, but fundamental. We cannot separate the process through which we meet, plan, learn, and make decisions from the kind of society we hope to create. Process must be addressed when we look to develop a bi-cultural society, a pluralistic society, a competently skilled work force, a competently skilled non-work force, a re-negotiated contract between the genders, and with the different classes ... What competencies are needed when we turn our attention to partnership, protection, and participation? How can each one of us be effective participants in the process?

A facilitator is always interested in process. I think of the basic needs - food and shelter, a sense of belonging, (Do I belong this summer?), or a sense of self esteem (You're OK! I'm OK!). The way these needs are met can vary from culture to culture. An effective process or system affords protection and takes care of these needs. Did the seminar meet, at least, these needs - for all?

¹⁴. When asked to explain what he meant Mr. Tapiata promised to do this in writing. After two follow up reminders nothing had been received at the time of publishing. (Editor)

What I would look for in a seminar is the kind of process that can bring a diverse range of people together and afford partnership, protection and participation for all and in so doing release the kind of co-operatative and imaginative thinking needed. It seems to me the seminar was planned and then proceeded according to a certain tau iwi format (Addresses by the Minister, keynote speakers, etc.) but finished with questions about the process ("What is this all about?") initiated by representatives of the tangata whenua.

Besides the process, and what it can tell us about cultural and occupational differences, I have also found it useful to reflect on the kinds of professional skills needed by participants to be involved in seminars such as this one. It occurs to me: What better way to explore, for instance, aspects of the DACUM model than for participants at the seminar to put themselves through a skills needs analysis? They could have identified the skills needed to complete the task(s) of the seminar, or the skills they might need in their future careers as decision-makers, policy-makers, etc. Perhaps, for all we know, some of them did just that!

FINAL WORD: SUMMARY AND SUGGESTIONS

The Working Party was generally pleased with the response to its nationwide invitation to attend the seminar. The formal programme was carried out as planned with the movement among presenters being achieved with the minimum of disruption and dislocation. Most participants made useful contributions both in formal sessions as well as in the informal discussions or open sessions and attempts to change the format of the seminar were accommodated at the expense of the final Future Directions session.

During the preparation stage of the Issues Workshops/Discussion Groups it was suggested by the Maori participants that Maori issues warranted a separate workshop. Nevertheless, as explained by Mr. John Tapiata, such a move would have excluded Maori participants from involvement in the other Issues workshops and would be interpreted by the rest as a divisive move. Thus, he suggested, Maori participants should attend the planned sessions first then meet later to discuss issues peculiar to their needs. This was agreed to and is recorded in the Report-Back Session documented elsewhere in these Proceedings.

What this seminar did then was bring into the open a number of issues that needed to be identified and discussed. To a large extent the controversy over DACUM was explored, and put to rest with the realisation that this method of curriculum development was only one of a number of methods which could be used in vocational education and training. What was not put to rest were some participants doubts about the mechanistic qualities of CBE and the difficulties associated with identifying relevant behaviours and measuring these behaviours in a meaningful and efficient way. In fact the whole question of the quality of the advice on curriculum development and evaluation in New Zealand was skirted around during the seminar. Participants were more outspoken about the need to improve the quality of instruction in our polytechnics than in exploring the kind of agencies and people who should be providing them with advice on curricular matters.

There were other important issues that were identified for further treatment but these were not taken up because of the larger issue of cultural differences that dominated the Second Plenary session. The Working Party expected to be given direction by the participants as to what steps might be taken next in developing the guidelines much sought after by the retrospective reviewers. Why this did not happen has been mentioned above. Nevertheless, these Proceedings form the basis of those guidelines, but the delay in publishing them has made their application somewhat tentative. Therefore, the Working Party would like to make some suggestions that should overcome this obstacle and reactivate the Proceedings outcomes.

There is still a widespread need to debate the whole philosophy of CBE in the context of vocational education and training. Participants fell into three camps of opinion over CBE - those who saw it as the answer to our employment problems, those who were

strongly opposed to it seeing it as a dehumanising process, and those who were just confused by the opposing viewpoints. It is our belief that there is a middle ground between the two extreme views. Therefore, we believe that the opportunity should be provided to explore this issue in more depth.

Perhaps an invitational seminar sponsored by the Ministry of Education would be appropriate as most of the opponents of CBE appeared to come from senior education professionals. Another likely sponsor is NEQA. This agency may well want to see this issue resolved so that it can produce its own procedures for dealing with curriculum development and evaluation relatively free from controversy.

Many participants wanted to know how to apply curriculum development models to specific occupational areas. It is clear that the techniques associated with using a mixed-mode curriculum development method, as advocated in Ian Livingstone's paper, require considerable skill from facilitators, curriculum developers, curriculum evaluators and programme specialists. Those with a responsibility for dealing with curriculum development and evaluation will undoubtedly want to know more about the range of curriculum methods available to the user and how they might be used in CBE. Therefore the Working Party believes that an invitational seminar specifically devoted to vocational curriculum methodology is urgently needed.

The initiative and sponsorship of this seminar, it was agreed, fell to NZCER with its considerable experience in the field having researched the utility of DACUM, DACUM-type, and other methods in recent years. The Council could undertake this project as part of its normal information dissemination duties. Furthermore, it has the expertise to help develop guidelines for the evaluation and research of vocational curricula. If NZCER agrees to this then it might like to collaborate with NEQA, assuming that NEQA wants to be involved in research-related matters of this nature.

The Towards Competency seminar showed the need for tutors to demonstrate a good understanding of basic teaching practice skills such as writing objectives, sequencing material, lesson and programme planning, and evaluating adult human behaviour. Because of discrepancies identified here, redress is not only urgent it is a fundamental education and training requirement. Furthermore, as explained by some participants from the Access schemes, the people working in their field are full of enthusiasm and drive but lack the skills to deal with a diverse types of students who often have learning difficulties or mental blocks to education and formal training. These amateur teacher trainers urgently need tutor training (including information on curriculum development) if they are going to succeed in their chosen vocation.

It appears that the national organisations best set up to deal with this need are the polytechnic tutor education centres for they have an intimate understanding of vocational training needs. Furthermore, they are spread throughout the country and could run regional courses all linked through a common core tutor skills training programme. Because they will require coordination to get them going it is suggested that the Tutor Education Centre (Central), which still has national responsibilities, investigate the possibility of running such a programme. It may find it

useful to hold meetings or run an invitational seminar to set the ball rolling.

Last, but not least, the need for a meeting (or more likely a series of meetings) to discuss the cultural issues that came to dominate the latter part of the Towards Competency seminar is obvious. There was a clear message from Maori participants that they did not want to be part of the European style of curriculum development because, in their view, it did not take cognizance of Maori values and work styles. Whether it is possible to develop a compromise between the two cultural styles (or not) has not yet been addressed in any systematic fashion, to our knowledge. We believe now the time is right for this to be attempted.

As the initiative for dealing with these issues has traditionally come (rightly or wrongly) from the European/Pakeha in the past, it is suggested that the Maori participants in these proceedings explore the possibility of running an invitational seminar to deal with the broader cultural issues they drew attention to here. This might be done as a prelude to developing a style and/or method of curriculum development and evaluation that they can feel happy about and yet which fits into the infrastructure of vocational education and training in New Zealand. The Working Party hopes that, if this suggestion is taken up, the initiators will involve people from all ethnic groups as we did for the Towards Competency seminar.

The Working Party

APPENDIX A

TOWARDS COMPETENCY SEMINAR WORKING PARTY AND SUPPORTERS

Seminar Organisers

Graham Wagner

Working Chief Research Officer
Vocational Education and Adult
Learning Programme
NZ Council for Educational Research

Nano Morris

Senior Training Analyst
Training Needs Analysis Unit
Vocational Training Council

Marilyn Davies

Education Advisor
NZ Employers Federation

Dean Nugent

Research and Development Officer
NZ Technical Institutes
Tutor Education Centre (Central)

Adrienne Burleigh

Assistant Director, Training
and Development
Vocational Training Council

Lorraine Webber

General Secretary
NZ Association of Polytechnic Tutors

Ray Thorburn

Senior Education Officer
Continuing Education
Department of Education

Teresa Maguire

Secretary/Research Assistant
NZ Council for Educational Research

Functions

- * Chairperson Seminar Working Party
- * Coordination and Administration of the Seminar and Proceedings
- * Editor of the Seminar Proceedings
- * Executive Officer of Seminar Working Party
- * Coordination and Administration of the Seminar
- * Presentation
- * Member Seminar Working Party
- * Reception
- * Member Seminar Working Party
- * Seminar Facilitator
- * Member Seminar Working Party
- * Guest Transport
- * Member Seminar Working Party
- * Registration
- * Member Seminar Working Party
- * Registration
- * Administrative support Working Party
- * Principal Seminar Recorder

The following people also provided support and assistance before, during, or after, the Seminar:

Lauren Stemplar

Training Analyst
Vocational Training Council

- * Recorder for some Sessions

Peter Rose
Assistant Training Analyst
Vocational Training Council

Geoff Lealand
Research Officer
NZ Council for Educational Research

Nick Zepke
Director
Tutor Education Centre (Central)

- * Recorder for some Sessions
- * Member of the Seminar Working Party prior to the Seminar
- * Proceedings commentator
- * Post-seminar Administration
- * Attended the first two meetings of the Seminar Working Party.

APPENDIX B

SEMINAR PROGRAMME

Tuesday August 30 1988

Time	Event
09.00-10.00	Registration and Refreshments (NZCER 6th Floor Conference Room, Education House, 178-182 Willis Street, Wellington)
09.15-09.30	Briefing for Presenters - Conference Room C (Refer Map)
09.50-10.00	Administration Briefing for all participants
10.00-10.30	Official Opening
	Powhiri
	<u>Speaker</u> - Honourable Mr. Phil Goff - Minister of Employment and Associate Minister of Education (Introduced by Mr. Derek Wood - Director Vocational Training Council)
10.30-10.55	Keynote Speaker 1 - Employers Mr. Ray Tayler - Employers Federation
10.55-11.20	Keynote Speaker 2 - Policy-makers Ms. Catherine Gibson - Department of Education
11.20-11.45	Keynote Speaker 3 - Providers Mr. Turoa Royal - Paramoana Community College
11.45-12.10	Keynote Speaker 4 - Researchers Mr. Ian Livingstone - New Zealand Council for Educational Research
12.10-12.30	Panel Session - Keynote Speakers Questions and Discussion
12.30-13.10	LUNCH - Served in the 6th Floor Conference Room
1310-14.40	Presentations/Workshops Practical Applications of Competency-based Vocational Curriculum Development and Evaluation <u>Introduction</u> These presentations/workshops are based on a rotational "carousel" mode (i.e., there will be six events running concurrently in the afternoon and two events running concurrently on Wednesday morning). The carousel format will enable you to interact with each presenter in way that would not be possible in a larger forum.

At 13.10 please move to your first presentation as
shown on the map enclosed. A recorder has been
allocated to each group to record key issues from

your groups discussions. Each presentation will be 25 minutes duration. Please move onto the next presentation promptly.

Presentation 1: Peer Group Assessment and Competency-based Training (Bernice Kelly-Dietitians Board)

Presentation 2: Competency-based Curricula in Agriculture Training (Ray Craven - Ministry of Agriculture and Fisheries)

Presentation 3: Competency-based Education in the Service Sector (John Olds - BNZ Training Centre)

Presentation 4: Management of Evaluation (Mary Boyle - Waikato Polytechnic)

Presentation 5: An Application of Competency-based Training (Victor Ramsey Johnson - Premier OTD Consultants)

Presentation 6: Technology and the Vocational and Academic Curriculum: Methods for Integration and Evaluation (G. Khan - Education Department, University of Canterbury)

14.40-15.00 REFRESHMENTS - 6th Floor Conference Room

15.00-16.30 Presentation/Workshops continued

16.30-17.00 First Plenary Session
Summary of key issues identified from keynote speakers and presentation workshops (Facilitator-Dean Nugent)

17.00-19.00 Evening Session
The Practical Implications of Competency-based Learning to the Effective Development of Self and Co-Appraisal Skills - limited to a maximum of nine persons (Peter Rutherford-Human Learning Resources)

Wednesday August 31, 1988

09.00-10.00 Presentations/Workshops continued

Presentation 7: Modularisation: Implications and Examples Competency-based Learning Programme-Carrington Polytechnic; Needs-based Learning on Campus (Lesley Edgley and Irene Lynch - Department of Education)

Presentation 8: The DACUM Process and its Application in Developing Competency-based Training for the Apprenticable Trades in the Motor Industry (Nano Morris - VTC and Steven Wickens - Motor Industry Training Board)

10.00-10.20	REFRESHMENTS - 6th Floor Conference Room
10.20-12.00	Workshops and Discussion Groups on Emergent Issues Facilitated by Dean Nugent
12.00-13.00	LUNCH - Conference Room
13.00-15.00	Feedback and Summary of Workshops and Discussion Groups
15.00-15.20	REFRESHMENTS - Conference Room
15.20-17.00	Second Plenary Session Future Directions for Competency-based Vocational Education (Facilitator - Dean Nugent)
17.00	Poroporoaki

APPENDIX C

SEMINAR PARTICIPANTS

Mr. George Qusklay Allan
Aoraki Polytechnic

Dr Eric Ashcroft
Education Department
Massey University

Mr. William Ashworth
Megalith Repro Ltd

Miss Wendy Marlene Baker
Aviation and Travel Industry
Training Board

Mr. Murray Barber
Engineering Industry Training
Board

Mrs Mary Boyle
Waikato Polytechnic

Mr. Stephen Brafield
Apparel Industry Training Board

Mr. Giles Brooker
Continuing Education Division
Department of Education

Mrs Marea Brown
Te Whanau O Waipareira Trust

Ms. Judith Christensen
Head of Nursing
Wellington Polytechnic

Ms. Jan Churchman
Vocational Training Council

Mr. Neil Stanley Couch
National Training Officer
New Zealand Jaycee

Mr. Ray Craven
Flock House
Ministry of Agriculture and
Fisheries

Mr. Vaughan Crimmins
Engineering Industry Training
Board

Mr. Noel Cuneen
Waiareki Polytechnic

Mrs Lidia Anna Dabrowska
Hearing Association

Deirdre Dale
Wanganui Regional Community
College

Ms. Marilyn Davies
NZ Employers Federation

Ms. Doreen Duke
Tainui Maori Trust Board

Mrs Mary-Anne Edwards
MTA

Mr. Trevor Gaskill
Royal NZ Police College

Mrs Peggy Gordon
Royal New Zealand Police College

Mr. Graeme Hale
Executive Director
Information Technology Education
Authority

Dr Cedric G W Hall
Education Department
Victoria University

Mrs Margaret Hannam
Hutt Valley Polytechnic

Mr. Harry Hutchings
AAVA

Mr. Victor Ronald Johnson
Premier OTD Consultants Ltd
Whakatane

Mr. Danny Te Kanawa
Tainui Maori Trust Board

Mr. Terence Kelly
Wellington Polytechnic

Ms. Bernice Kelly
Registrar, Dietetic Board
Department of Health

Mr. Ghulam Khan
Education Department
University of Canterbury

Mr. Jim Lester
Northern Regional Tutor Training
Centre

Mr. John Lyon
NZ Trades Certification Board

Teresa Maguire
Research Assistant/Secretary
NZCER

Ms. Janet Marsland
Continuing Education Division
Department of Education

Mr. Bill Matthew
AAVA

Mr. Alistair McCallum
Royal NZ Police College

Ms. Jean McCombie
Wairarapa CAP

Mr. Terry McDonald
Christchurch Photoengravers Ltd
(Graphic Arts Platemakers
Federation of NZ)

Mr. Bryce McLoughlin
Tairāwhiti Polytechnic

Mr. Malcolm Menzies
YMCA

Mr. Whare Te Moana
Department of Education
Central Regional Office

Mr. Geoff Moore
Telecom

Miss Nano Morris
Senior Training Analyst
Vocational Training Council

Mr. Jan Mortensen
Northland Regional Employment
ACCESS Council

Ms. Jennifer Anne Nanson
Education Department - Central
Regional Office

Mr. Gary Francis Norris
Hotel and Catering Industry
Training Board

Mr. Dean Nugent
Research and Development Officer
for Technical Institutes
Tutor Education Centre (Central)

Mr. Te Hata (Olly) Ohlson
South Island Tutor Training
Centre

Mr. Alistair Paterson
Continuing Education Section
Auckland Regional Education
Department

Ms. Helen Patterson
NZ Trades Certification Board

Mr. Ralph Libbo Penning
NZ Motor Body Builders
Association and Institute
of Personnel Management NZ

Ms. Heather Joan Pohl
Manukau Polytechnic

Ms. Lee Pomeroy
Plain Training

Mr. John Powell
Department of Education

Ms. Doreen Puke
Tainui Trust Board

Mr. Percy Robinson
Te Whānau O Waipareira Trust

Mr. Peter Rose
Training Analyst
Vocational Training Council

Mr. John Russell
Association of Polytechnic
Teachers

Mr. Peter Rutherford
Human Learning Resources

Dr. Linda Sissons
Trade Union Education Authority

Mr. Clyde Smith
NZ Trades Certification Board

Ms. Lauren Stemplar
Training Analyst
Vocational Training Council

Mr. John Tapiata
Continuing Education Division
Department of Education

Ms. Julie Ann Thomas
Department of Labour

Dr Ray Thorburn
Continuing Education Division
Department of Education

Mr. John Thornton
Waiareki Polytechnic

Mr. Bill Trengrove
TAFE
South Australia

Mr. Graham Wagner
Chief Research Officer
Vocational Education Programme
NZCER

Mr. Douglas Walker
Centre for Continuing Education
Victoria University of Wellington

Ms. Margaret Waugh
Department of Continuing
Education
University of Canterbury

Ms. Lorraine Webber
General Secretary
NZ Association of Polytechnic
Tutors

Ms. Judith Ann Weir
Vocational Training Council

Mr. B D Whisker
Vocational Training Council

Mr. Stephen John Wickens
NZ Motor Industry Training Board

Mr. Michael John Williams
Department of Labour

Mr. Ian W Wright
Vocational Training Council